

HUNTING, FISHING, AND CAMPING

BY
L. A. ANDERSON



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Michigan Department of Conservation—Plate 1, center right; Plate 2, upper right, lower left and right; Plate 4, lower left; Plate 6, upper; Plate 7, upper left; Plate 8, lower; Plate 10, lower left and right; Plate 11, center and lower; Plate 13, upper; Plate 14, upper; Plate 16, upper left and right, lower left; Plate 17, upper right; Plate 18, upper; Plate 19, lower right; Plate 20, upper.

Wisconsin Conservation Department—Plate 1, center left; Plate 6, lower; Plate 7, upper right, lower left and right.

Warren Boyer from Gendreau, New York—Jacket photograph

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Hunting

I. How to Hunt Deer

To hunt deer successfully you need not travel far into the wilds. If you have the persistence you can bag a buck in Pine Ridge, Pennsylvania, in Cutover, Wisconsin, or in Hilltop, Maine. In fact, deer are still found in nearly every state in the Union, but are, of course, more plentiful in some places than in others.

If you have determination you can go into deer country not far from home and get your buck. For best results, pick out the general range where deer abound, and then determine the most likely place for bagging one. Any game warden or guide can inform you about the best hunting grounds. Choose the areas of proved merit and work them well.

If you have a passion for one part of the deer woods—and what hunter hasn't?—the chances are that you will return to hunt there a second time. But if you are looking only for deer, I would suggest going back only when the hunting warrants another trip. Deer have an uncanny habit of changing their field from time to time, and a second visit to an area where they were once numerous may reveal only a few. This is especially true where the range is being settled. A few years may bring a big change in the conditions of a certain locale. Deer may still be about—very seldom do they leave any territory entirely—but it is wise to make sure ahead of the season that the game is there. Investigation beforehand will save you time and temper, for it is much more fun hunting country with many deer than with relatively few.

Going to the same deer grounds year after year when the country is good, however, is advisable. Once a hunter becomes fully acquainted with a hunting range, he has an advantage. He knows where the deer are hiding out: where they bed, feed, and travel. He gets to know the "lay of the land." But the hunting scene changes from year to year; the wise hunter takes note of this and finds out before season the value of any certain area.

Do not try to cover too much ground in your deer hunting. Pick out a mile or two of good field and stick to it. It will pay dividends in the long run. Determine where the deer "yard" if you can. If you are able to find where such a place is and get there early in the season, you should stand a good chance of getting a deer, provided a hundred other hunters have not found it out also and got there before you. Do not be misled by deer tracks and yards. They may have been made by a large number of animals or by only a few milling around. A trio of deer can make a multitude of tracks around a water-hole, a hayfield, or a clearing. This is also true of beds; one deer may make as many as three beds during a day. So study the signs closely and try to ascertain how much game the range really holds.

The man who finds, by one means or another, where the deer are and goes there the first of the season and hunts carefully, is the one who stands the best chance of seeing game and getting shots. Often the deer will be plentiful in one spot and not in another in one small area. Determine the most likely part and concentrate on it. By all means do not look for deer in the same places during hunting season that you did during the summer—the same *general* range perhaps, but not the same open spots. In warm weather they are quite tame and much in evidence, but their feeding grounds vary when the frosts come. Once the weather acquires a nip and the deer are shot at, they go to spots

hard of access, where feed and covert are more secure, such as a freshly cut hemlock stand.

The white-tail does not travel far, however. If unmolested the average deer will not cover more than a mile or two a day. He does not care to move very far if his range has the cover and feed he desires. Find out the deer's habits and habitat, and the rest is easy. Be at the right place at the right time; don't look for deer in the swamps when they are in the hills. You may find them at almost any place, but if you know where and at what time they are apt to travel, to lounge or lie down, and to feed, you will know where to go and what to do at any certain time of the day.

If you have knowledge before season of the best hunting grounds or can employ a guide to take you there, you are fortunate, for you will waste little time. But if you have not been out in the woods before the first day of the hunt, or are not sure where to find the deer, make this discovery the object of your first day's hunt. Learn the landmarks; get a mental picture of every ridge, ravine, hill, swale, swamp, hardwood, and highland.

Sometimes it will surprise you where you will find deer. Big timber is a favorite cover for them, and in this retreat they do not travel as far as they do in the open or in the cutovers. Nonetheless the deer of the North roam cutover land to a large extent and seem to prefer it for daytime travel and feeding. The white-tail loves this rough country. Just follow the buck's track where it is well etched in the snow and you will find that he is up hill and down dale most of the time. The doe, especially when traveling alone, is not so sly, for she is usually unmolested in the one-buck areas. But the buck is wary and generally hunts the roughest going. He will cross cutover lands that require the hardest traveling, passing up the trails as though they were not

there, and going to the top of some brushy hill to lie down and rest. The range of a deer is limited if he is not disturbed; but in that small range he picks out the places where he can best hide, and beds down in heavy cover.

When scared from his bed, however, a buck will try to convince you that he is traveling far and wide. It is only a ruse; keep after him and you will, sooner or later, find where he has slowed his pace and perhaps lain down. And deer do bed down for long periods, even in bitter weather. For example, a friend of mine had trailed a buck for the better part of the morning, taken a shot at him, and then given up the hunt. After noon, acting on a hunch, he returned to pick up the trail where he had left it and found his buck not a quarter-mile away, bedded down in the snow where he had lain for several hours.

A deer can make astonishing jumps and bursts of speed, but this is to discourage you from following. He is not a far-traveling nor a powerful animal. Sooner or later he will slow up, and will skulk and hide rather than run. After he has left you behind, he will ease up and sneak away, and the white-tail can do this only too well. He is adept at it, and picks the cover for it when choosing his range.

You will find as the season advances and the deer are much hunted, that they learn to go into rougher country. This should be a guide for the wise hunter. If you have not been able to see deer in your favorite hunting place, they have probably changed their stamping grounds and you will have to hunt them in rougher territory. They even move across a state border, especially when the seasons in the different states do not coincide.

When deer are wild and wary, go after them in areas where they have not been much disturbed. For instance, if game abounds and hunters are not much in evidence, try old slashings



PLATE 1

Upper In summer deer may browse at your cabin door. *Center left* consin whitetail deer. *Center right* Rough piney woods near a lake excellent cover for deer. *Lower* Many hunters make arrangements headquarters at logging camps.



PLATE 2

Upper left One of these tame deer wears a bell. Note the tell-tale white on inner side of the tail. When a deer is running through the woods he is seen. *Upper right* Just before rifle season, this deer was killed with a bow and arrow. *Lower left* Stalking deer on snow is unusually interesting work. *Lower right* Spot your deer before it spots you by



PLATE 3

Upper Another hunter got his buck. *Lower* Two good-sized trop



PLATE 4

Upper left Swing into shooting position quickly and lead your bird. *Upper right* A wing shot is always ready. *Lower left* A well trained dog is a help. *Lower right*. A good grouse gun is a 5-shot, 16-gauge pump with a modified choke.

known as wood-lots, where firewood is obtained. Some of these backwoods clearings have the cover and browse the white-tail desires, and such places make good "private" hunting grounds. The first part of the season you will probably want to head for country which is reputedly gamy, where you can join other hunters. But when the season wears on and hunting becomes lean in these well-known spots, find a range of your own and work it well. Here you can take your time about bagging your buck. If there is snow on the ground, pick up a fresh track and keep on your buck's trail all day if need be. He will not go far, as a rule; sooner or later he may bed down if you take after him with a studied nonchalance.

Select rolling ground, where breaks are short. When I picture good deer country I think of hardwood timber or slashings, sprinkled with switchy brush and cut up by ridges. This affords covert for game as well as concealment for the hunter. If it is off the beaten path, so much the better; but it need not be in the wilderness. Deer will come very close to settlements if the country is to their liking in other respects.

HOW TO STILL-HUNT FOR DEER

If you wish to have real success in deer hunting, it is well to supply yourself with the proper accoutrements of the business and then to hunt at the right time of day. Get there early. Be in the woods before daybreak if possible, for at this time the deer are beginning to get up from their beds and to look for browse.

No camp is more interesting than a deer camp during the month of November in the big woods. There is always the kitchen fire or the pot-bellied stove or the outdoor fireplace around which to sit and "gab" during the evening hours. Hunters are a congenial lot and like to stay up late. Enjoy your fire-

side chats, for they form a big part of the hunt, but sleep or no sleep, try to cultivate the early rising habit when you are out after the white-tail.

It is best to arrange your schedule the night before, oil your gun, make sure of your cartridges and your compass, and get your lunch ready so that you will not have to waste precious time in the morning. Set a certain time to get up, and don't oversleep. You will want a hearty breakfast of hot coffee, bacon, eggs, and more coffee. There is nothing so smart as taking your lunch with you, especially while still-hunting for deer, and a well-prepared lunch topped off with a thermos bottle of hot coffee should carry you through the day.

In some deer camps the hunters drive deer; that is, they chase the deer out and give the "standers" a chance for a shot. This sort of hunting is entirely ethical and sportsman-like, and is sometimes resorted to when other methods fail. But the real fascination comes in going after deer yourself or with a companion. In a small party still-hunting is best, for driving is out of the question. In my opinion still-hunting is more sporting than any other and also more productive. You can travel as you will, cover more territory, and meet more surprises than if you were on a stand with a crew of men "dogging" through the woods.

You start out in that hushed and fragrant hour that comes with the breaking of day, and from there on play a game of hide-and-seek with the quick-eyed creatures of the wild. It is up to you to outwit your game, and one of the best ways to do this is to find a runway where deer have traveled recently and wait for them there. Posting like this is highly worthwhile when other nimrods are working the same territory. If possible, determine before season the best deer crossings and passes. Then as soon as you can find your way out of camp, make quiet

tracks to your designated stand and there render yourself as inconspicuous as possible.

True, you hold a better chance of bagging a deer with a crowd of men beating the brush for you, but if you can find a stand, preferably a crossing or much-used runway, where hunters will be working through, your chance of getting a shot is excellent in good game cover. As soon as the woods begin to be frequented by hunters, the deer become nervous and are on the move. Almost always they follow the easiest routes of travel, and if you can find a runway used by them at the beginning of the season, posting at such a spot should place you in line for either a standing or a running target.

One of the best ways of posting is to stand up against some big tree so that your back is shielded, and make sure you have a good view of the surrounding territory. Hunters will be working through here and there, and deer will be on the move, especially when guns begin to boom. Find a high lookout if at all possible. A ridge is one of the best bets, for deer travel along the firm ground of the ridges much of the time, where there is less brush to run through. When they come out of their beds in the swamps, where they usually spend the night when the weather is cold, they often move out into the hardwoods where they can feed leisurely and have a chance to run when shot at. But they are not always in the hardwoods. Hemlocks and evergreens in general afford them shelter and food, and they go to those spots too, but driving usually brings them out along the ridges.

A still morning when sounds travel far is favorable for posting. The sooner the hunter gets to his position the better, for when he is on the move he gives himself away much too easily. Deer make very little noise traveling through brush, but they make enough so that you may hear them coming and sooner or

later glimpse them moving along, especially when they are being driven or kept on the move by hunters in the brush.

By all means be sure to have on enough clothing while posting and still-hunting, for if there is one time the hunter feels the cold it is at a deer stand. He must be still if he expects results. The quieter he is and the more he blends in with his surroundings, the better his chances are of seeing and shooting at game. A certain restraint is required in posting that every hunter does not possess. You will get tired of staying in one place when you hear shots resounding through the woods from different directions. But you cannot be in all the places the shots are coming from, and posting in an open spot in good game cover, watching in all directions, puts you in good position for seeing deer and getting in a shot or two. Watch carefully, though. I have had deer come within a stone's throw, with snow on the ground, and I never knew it until too late. Don't set your gun against a tree; keep it within easy reach.

Deer are curious animals, and may come quite close to the sentry-like hunter posting nearby. Once they are shot at, however, their curiosity is pretty much at an end, for they find that a hunter bodes them no good. But for the man posting and keeping very still, there is every chance of not being spotted by the deer if he keeps covered and becomes one with his surroundings. Of course, there is always scent to be considered, and a spot should be chosen where the prevailing winds do not carry your scent toward the deer.

Keen eyes are an asset to the still-hunter, for the game is wary and hard to see at times, especially where cover is the least dense. I have seen a deer take advantage of protective coloration and disappear completely from sight in brush that had hardly any leaves. You must study your country and discover what is suspicious and what is not. It is necessary to proceed cautiously

and be able to detect movement in the brush. It is remarkable how a deer can steal through the woods and thick brush without making much sound. One must be on the alert to detect it. But once aroused into action the animal will crash and smash his way through the brush, making all the noise in the world getting out of danger's way. This is when the hunter can get a shot at him, but it will have to be a quick one. Usually it is difficult too, for a running shot at a deer is tricky. Follow him with your sights until you see an opening, and then fire when he reaches that spot. Watch your first shot, and don't shoot too fast. Take your time and make each shot count. You may not get another.

Some hunters posting on a game trail will wait until their deer gets so close that they can "burn him up" with their fire. I have never been so close to approaching game during the season, but it can be done with the wind blowing from the deer toward the hunter. A patient poster can get his game in this way many times, although it is irksome and hard on the patience. While you are waiting there will be many temptations to shoot at other targets, for small game is much in evidence during deer season. It is wiser, however, to hold your fire if you wish to bag a deer, for once you shoot, the deer are forewarned and alarmed and will be hard to see for some time thereafter.

Posting along a runway in the deep woods has its advantages, but it is not the only way of still-hunting, nor always the best. If you do not see deer after a reasonable time, there is every possibility they will not come at all that season, in which case it is wise to move. If the ground is noisy, travel to some other spot and post again, keeping eyes and ears open en route for a possible shot. You may run into deer at any point.

If the area is fairly open, find some high spot where you can scan the country for some distance, either with the naked eye

or with glasses. Here the man whose gun is equipped with a scope can try for a long shot. If he wishes, he can try to get closer, within good shooting distance, or can try to head off his game if he thinks that method is better. This sort of hunting will not always net you a deer, but it is worth trying.

No animal is warier than a buck during hunting season, and only too often the hunter meets surprises which trick him out of a shot. Sometimes in open country the deer will lie concealed behind some brush even as you pass by. If you do not make much noise and do not actually see the deer, there is a good chance that he will just keep on hiding out within winding and seeing and hearing distance, and then when you are entirely unprepared will get to his feet with a snort and a bound and go crashing into the brush.

The buck deer will run downhill usually. Ever watchful, he will turn around and face his back track. When you do rouse a buck in such close quarters you may be too alarmed to make a telling shot. Always be on guard; and be ready for a shot at any time. When you least expect it is oftentimes when you get your best opportunity. On some of these short shots you may wish for a shotgun loaded with heavy charge, but there are ever so many occasions when a rifle is far better than a shotgun for deer, and most deer hunters in the North Woods carry rifles.

When still-hunting, always go where you can see for some distance looking into the wind. Do not tire yourself out the first day or two. If there is much snow, by all means keep out of the swamps and stick to the ridges. That is where the deer will be moving if the snow is not too deep. If you like to travel far and wide, however, use snowshoes when the snow is deep and there are trails to follow. Then you can stay on top of the snow and move along with comparative ease and quiet.

Deer are as unpredictable in their actions as the weather, and

therein lies the joy of hunting them. Nobody knows exactly how they are likely to act. They are elusive and wild and never to be regimented, as the still-hunter soon discovers. He will find that still-hunting is his best way of downing his buck both on bare ground and on snow.

HOW TO TRACK DEER ON SNOW

Some sportsmen like to post for deer at all times, but not many. It is too tiresome and monotonous. Sooner or later something like cold weather and a fall of snow urges the nimrod on, and he decides to stalk his deer. He picks out a fresh track and tries to keep on it until he secures a shot at his quarry. This is good hunting.

When there is snow on the ground, tracking is much the best way of hunting deer. In fair game cover there are plentiful deer signs which present a good picture of the animal's whereabouts to the hunter who can read them. The experienced stalker picks fresh tracks and continues carefully from there on, ever on the alert. He knows there is no use in hurrying. It is best to strike an easy walking gait that is not tiring. If the snow is deep the deer will not be moving fast; the tracker can go slowly also, and wear him down.

The keynote in tracking is caution and the ability to keep one eye on the trail and the other on the game. Do not allow the trail to take your attention from the game itself, in other words. If you are not careful, the deer will be watching you instead of the other way around! No game animal is more wily than the buck deer, especially when he is being hunted. Then, of course, he is more alert than ever, and one must always be on the watch and keep an eye far ahead. This is especially true where the going is noisy, but it is also true when tracking on

snow-covered ground. A wary deer may always keep just out of your sight.

You are wasting time by following a deer that can scent you. If your quarry is slowing up and you find that the wind is blowing from you to him, start circling so as to bring the wind into your face. In fact, this method of circling is a good idea, wind or no wind. Unless the trailing is exceptionally good, on soft snow that is not cracking underfoot, it is best to determine the general direction in which your deer is traveling, and then head him off. Do not go straight for him but "cut him out," or wait for him at some open spot where you think he will pass.

When the snow is soft and footsteps deadened, tracking on a pretty straight line until you see your deer is usually the best way. When conditions are like this, take advantage of them by all means. A deer does not travel fast or far unless he is alarmed, and then a tireless hunter, or a patient one, may be able to get close to him. But when your deer is moving into some deep swamp, it is sometimes just as well to let him go and try to get him where he emerges.

Tracking has its disadvantages as well. The more deer are tracked and hunted, the warier they become and the harder the stalking. Then they will watch their back track very warily, and to try to track them down even on soft snow is difficult and vexatious to say the least. But the tracks will be there, and the hunter can use them as a guide to determine his actions.

On crossing a track it is always a good idea first to make sure it is worth following. There is no use working along an old trail, and no use following a doe in one-buck regions. The imprint of dewclaws is the distinguishing mark of the male deer. If the weather is cold a really fresh track will not have frozen over. One of the best ways of determining the freshness of a track is to compare it with your own. An old track will lack the

sparkle of snow thrown ahead by you, and if the ground is wet, the water will be frozen. The crystals of the snow on an old trail will have lost their keenness of edge by evaporation, a process which goes on even with the very driest of snow and in the coldest weather.

When you do find a fresh track, ascertain in what general direction it leads, and then if the ground is noisy decide to cut out your game. If it is a running buck, your chances of heading him off are none too good, although he will stop running sooner or later and you may be able to cut him out by circling back. Slip around to the leeward of the breeze when you do this, or you are just wasting time.

Let us say these tracks are made by a good-sized old buck. First cut a wide circle and try to strike the track; if it is still there and fresh, cut another and wider circle until you get within range of your buck. Watch especially for zig-zag tracks, for when this occurs your deer is looking for a place to lie down. Careful tactics should net you a shot at him then. But even if you are unable to get a shot, you may obtain a glimpse of your deer, which is encouraging. It will put you more on the alert than ever. After locating your quarry, you can trail him in earnest. If he is alarmed, he will be watching his back track closely now, and will be running more.

During the daytime deer stay in the hardwoods much of the time and follow ridges. In deep snow tracking in this cover may be discouraging and tiring. Take it easy and always look into the woods far ahead of you, trying at all times to eliminate the obvious and determine what is suspicious. Even with the snow as a background, a deer standing in the brush is very hard to detect; instinct tells him just how to protect himself by this means or that, but it usually is the flirt of his tail that gives him away. Watch for the white "flag" if for nothing else. Watch

carefully for other signs too. I have seen a deer turn directly face to the trail; sensing the white of his tail as a danger signal, he kept it down or out of sight of the stalker.

If the hunter can assume an air of elaborate nonchalance in his tracking, it will aid him greatly. When a deer is being chased by a reckless hunter, he will go with the wind. But the easy-going nimrod, now that he has located his game, may work himself within good shooting distance of his buck if he is a good actor.

Keep on and on. Study the track, and do not be discouraged by the roughness of the woods through which you must travel. Your deer will be encountering the same trouble, and it will wear him down eventually. In good deer country you may run into other tracks, and it is important to make sure of the track you are following and to stay on it. Get a clear picture of it in your mind and search it out where it merges with others. Sooner or later you may catch sight of your deer far ahead. Possibly he will see you, too, and be gone before you can shoot.

It is just as well not to fire if the shot is out of range. There is no use wasting ammunition and scaring your buck. Get as close as you can for a good shot and make a clean kill when you do press trigger. There is nothing more vexing than just nicking your game and then having to follow him, running wild and wounded. Better try for a good shot or none at all. When much hunted and shot at, deer will drift into a chronic state of suspicion of their back track, and then the hunter has a real job. Get as close as you can and don't shoot until you are certain you can put your bullet into a killing spot, for unless a deer is hard hit he may go on for a long time, especially if the gun is not high-powered. Never use anything less than a .25-caliber rifle for deer.

If the "flag" goes down when you shoot, the animal is usually

badly wounded and may drop shortly in his tracks, but not always. He may start off with a rush and not leave a drop of blood in his trail. Maybe you hit him, and maybe not. Some deer travel for miles after being hit, and can carry a lot of lead if it is not placed right. There is nothing more exasperating than following a wounded deer, even on snow where he leaves tracks. If he is hard hit, you may not have to go far; but if wounded only slightly or moderately, he may travel fast and far, and some other hunter may get him before you do. Worse than that, he may head for some swamp or inaccessible area where nobody will find him. If you do wound a deer and he gets out of sight, do not rush after him, but give him a chance to lie down and stiffen up. If hard hit, this will happen shortly enough.

Never do any hunting at night, for this is dangerous business. At best your shots at night will be guesswork and may cripple game instead of killing it.

When deer are hunted for some days they get very wild, and many methods may be needed in tracking, but care and skill can net you game nonetheless. When you see deer at long distances, as you may when hunting is competitive, first find out what they are doing. They may be feeding on a course; in that case determine where that course leads, so that you can follow. They may be standing around preliminary to lying down, in which event you will have plenty of time to approach with caution. If you see they are just browsing slowly you can make a detour, first determining what their course may be, by examining the contour of the ground from a distance. Almost always deer work along in some specified direction at certain times of the day, and by reconnoitering you may outwit them.

Always remember how quick a deer's eye is to catch motion in the woods. A deer is even faster than the hunter in detecting movement in the forest, and it is wise to move slowly in stalk-

ing, stopping every now and again to spot your game before it spots you. Be especially careful about your rifle. Even if the barrel is blued, it will catch and reflect light; anything like a flash of metal will frighten a deer and set him off with a bound.

The chances are that you will come across beds made by deer which may give you a clue as to the nearness and quantity of game. In snow, of course, these beds are easier to see than on bare ground, but they can be detected there, too, by the trained tracker. If the beds are fresh, take good note of them; your deer may not be very far away and may not be moving much. Perhaps you can find the game in leisurely attitudes, that is, just moving slowly along in the brush, standing around in small groups, or lying down. If you take it easy here, you may single out your deer and bag him with a careful shot.

When deer are bedding down, do not think they are sleeping, however. They rarely sleep in the daytime; when they are resting they are just as alert as usual, and you will have to approach carefully. Sometimes a deer will purposely lie still when he hears a person. He is relying on his ability to hide and skulk, and I have no doubt many hunters come very close to deer at times without detecting them or making them move. There is every chance that your deer will move out of his bed before you see him if the wind is blowing from you to him, or if you make a noise in the brush at some distance. It is well, therefore, to tread lightly and to hunt against the prevailing wind if possible.

Watch windfalls and brush heaps. Freshly cut hemlocks—fine forage, left by the loggers—make a gamy hideout for deer, which will loiter very close to logging operations so long as they are not molested. These places offer unexcelled hunting grounds, with logging trails to use as a footpath. Nothing will give you a bigger thrill than working within shooting distance of some wary old buck totally unaware of your presence. This

takes skill, for deer are smart. You may have to take a running shot at your buck, especially in wooded country where he has so much in his favor, but it may be a telling shot—the one that you have been looking for.

2. Getting the Most out of Your Rifle

Success with the hunting rifle depends upon a number of things, some in the rifle and some in the shooter. Most rifles on the market are good guns which with a little care should last for many a season. There are some which are wholesale frauds, however, and should never be fired. So look well to the rifle you are acquiring. When you find a reliable arm, hang on to it; handle it well, and to get the most out of it in the field, find out what it can do and what you can do with it.

It is mainly a question of what you can do with your gun. You should be so well acquainted with it that gunner and gun act as a single unit. The time to find out how you and your rifle get along is between the hunting seasons. If you wait until the day the big-game season dawns, you may find that you and your prize rifle are total strangers and likely to remain so until the end of the season.

To eliminate the commonest of all reasons for failing to hit your target, it is well to sight in the gun first of all, and to do it yourself. Whether you own the rifle or are only borrowing it, you want to know that it is going to target what you are aiming at. I have seen rifles sighted so far off that they could not kill a standing deer at 50 yards. "Buck-fever" may be one cause of this, but I refer now to the sighting of the rifle. An improperly sighted gun will make you miss even an easy target every time. So find out before season just how the rifle shoots.

A gunsmith can sight the rifle in for you by "boresighting" it. This he may do by putting it in a vise, taking out the bolt,

and adjusting the sights so that when fired from this hold the gun hits some target in the distance. This kind of sighting is better than none at all, but it is at best only sketchy, and may cost you a lot of missed game. There is the chance that a rifle sighted in this way may be right, but you will never know until you try it.

The best way, however, is to adjust the sights for yourself, because everyone has his own method of holding the gun, of firing, and of looking through the sights.

A lot of deer rifles are equipped with the open sight, and with this type you must be especially sure in sighting. There is not so much variation with a peep or a scope sight, but no matter what kind you have, do the job for yourself. Before adjusting, determine what kind of ammunition you are going to shoot, and use it when sighting. Different kinds and brands of ammunition vary, even though all have the same weight of bullet and the same advertised velocity. So take your rifle out and check it with the kind of bullet you intend to use for the hunt.

When sighting in, use a rest which is soft, like a rolled blanket or pad; resting the barrel on anything hard will cause you to shoot high. For a target make a bullseye out of paper and place it at a distance of about 100 yards. Make sure your rifle range is safe, and then try shooting at your target from a rest. Adjust your sights from time to time so that you have your rifle shooting on the target, making from a 4 to a 2-inch bull at 100 yards. And when you have the rifle sighted correctly with a rest, try shooting it offhand, for this is the way you will get most of your shots on game. If it shoots to the right or the left, you will have to adjust it by moving the rear sight to right or left, whichever way the targeting indicates.

With the open sight you will have a tendency to overshoot if you do not get the front sight down in the notch. If the rifle

shoots high when properly held, move the rear sight ahead slightly and test it again. Your steps on the open sight usually have a value of 5 or 6 inches for each 100 yards, so adjust accordingly, taking pains to do a good job.

If the steps prove too large for the sighting, take a file and cut them down to the right size. Adjusting the open sight is no easy job; you must keep on experimenting until you get the rifle shooting where you want it. In the end you will save time, temper, and cartridges. If 100 yards is not the average range, determine what it is that you shoot at game. For most North Woods deer hunting 100 yards is about right, but shots oftentimes are a lot less than that.

As to positions for shooting deer, the most valuable to the hunter is undoubtedly the offhand. It has been said that 90 percent of deer and other big game are taken with this position. The hunter is standing when shooting offhand, and to see deer in the woods for the most part he must be on his feet. Usually with the big-game hunter it is a case of now or never when a shot is afforded, and he has no time to look for a rest. He must swing the gun to position wherever he is, and shoot. Most hunters are able to shoot fairly well offhand at 100 to 150 yards.

A man must acquire a certain amount of balance to be a good offhand shooter, but this balance can be acquired by the average hunter. A good offhand shooter is the one who can make a 4-inch bull at 100 yards, and an offhand shot of this caliber needs no other position when hunting big game. If you have the time to get a prone, kneeling, or sitting position when you shoot, so much the better. Take your game at rest wherever possible. Shots with a rest are the exception rather than the rule, however, and the importance of offhand shooting on deer cannot be overemphasized.

In long-range shooting there is no position like the prone, but



PLATE 5

Upper left This hunter found grouse on a fire tower hill. *Upper right* The northern grouse is a tricky bird. *Lower left* A beautiful pair of ruffed grouse. *Lower right* Most grouse hunters prefer pump guns, but not too heavy.



PLATE 6

Decoys are an attraction for passing ducks. *Lower* A duck on the wing.

in woods hunting there is little chance to use that position. In the mountains and perhaps in open country where the game can be seen for long distances, and stalked, hits can be made from the prone position so well that it would be foolish to try any other. This accounts for some of the phenomenally long shots on deer that you read about. The prone is a good position from which to take woodchucks, mostly with a scope-sighted gun, at a range beyond 200 yards. But for the average shooter to learn only the prone position becomes a tremendous handicap, as he will soon find out if he hunts deer in wooded country.

The kneeling position may be a little better, but this is not so practicable either. If you can become a top offhand shot, shooting from a kneeling position is hardly necessary. But even with plenty of practice some shooters cannot become good offhand shots, and in this case the kneeling position should be developed.

What you might practice besides the offhand for deer hunting is the sitting position. This can be assumed almost instantly and with a less perceptible movement than a step forward would be. Sometimes in crouching low to get a better view of the game through the brush and limbs you are close to the ground anyhow, and to settle to a sitting position is quite simply and quickly done. It is much steadier than the offhand, and a good shooter with training can make some very good shots with it.

But the fact remains that the offhand is the best for big game, especially since many of your shots will be on running animals. Running shooting is simply shotgun shooting carried to a fine point; these shots usually are thrown at the hunter on the instant, and he must be ready to take them quickly. Get a rest behind a tree if possible; better still, learn offhand shooting without a rest and try to develop it.

Good offhand shooting is learned only by practice. The ability to hit a 4-inch bull at 100 yards standing, holding the rifle

comfortably, with arm extended as the shooter prefers, is something to acquire. But it demands a tremendous amount of practice. The majority of novices cannot stand still enough to make such shots. Most shooters depend on trigger pull for their effective shots; as the bead hovers over the target they press the trigger by timing it when it is on the target. Some men do this well, and others not so well.

But if a man practices faithfully standing, sighting, and pulling the trigger (preferably a set one), the time will come when he will be able to fire without the least trace of movement, and he will eventually become an expert offhand shot. This practice can be acquired by dry-shooting right at home—a simple form of training but remarkably effective in developing good shooting form.

The first thing to do in training is to select the best position for the feet. No two men stand in precisely the same way. But whatever position the shooter assumes is right if it enables him to balance and to swing easily and steadily in any direction. Then, rifle down, bring the butt to the shoulder firmly and fit the stock to the cheek precisely. Aim, pull the trigger, and call the shot, using all this time an empty cartridge in the chamber. Do this again and again, until tired; and keep after it. You will waste no shells, your hits will be on the mark most of the time, and you will bag game.

If the hunter has used a shotgun before deer season it is to his advantage, for skill acquired in one form of shooting is transferable in an amazing degree to another. Swinging a shotgun with a crossing duck or partridge is almost exactly like swinging with a crossing white-tail or antelope, and requires the same muscular control. Instant decision and speed are needed for both. Precision shooting is best learned with the rifle, however. The deer hunter with a rifle knows he must either hit or miss.

The swing and speed of the shotgun will aid the rifle shooter provided he also puts in some practice with the rifle on precision shooting.

The tendency to overshoot with a rifle is one of the most universal errors. One of the ways to correct it is to hold the rifle tightly with the butt against the shoulder, not against the muscle of the arm, and keep it pressed tightly there if the gun has much recoil. A hard trigger pull can cause overshooting. A slow steady pull is the way to eliminate this when shooting a very hard trigger with a rest. With a set trigger the same fault may develop, and it is well to have the hard trigger pull adjusted to $1\frac{1}{2}$ to 2 pounds, and the set trigger bearing a touch of 3 ounces before going off, which is safe enough. Anything over that is unnecessary and a nuisance. Use the hard trigger for all close, quick, and running shots, and the set for all fine and long shots.

There is only one true way of bringing the sight on the mark in hunting, and that is to raise the rifle from *underneath*. The experienced hunter shooting thus will fire as the sight comes to a level on the target, or appears to do so. Practice has made him automatic in regard to care and precision, and he gets his sights lined instantly on the game.

A word about sights for the deer hunter. For woods shooting most hunters prefer the open sight; it is faster than the scope and peep, and just as safe on running deer. Most deer rifles are therefore equipped with it. Although many deer have been killed by hunters using peep and scope sights, many a shot has been missed with a scope where an open sight would have brought down the game. The deer woods in fall can produce many kinds of weather. If the hunter were sure of clear skies and unobstructed shooting from a rest, a peep or scope sight would perhaps be much better than an open sight; but with rain and snow and dark days the rule rather than the exception, the

woods hunter will be wise to use open sights. Then he need not fear the blurring of mist or rain, as he would on a scope or peep sight.

If you have any choice at all, sight for a vital spot on your deer. There is supposed to be a vital area of only 8 inches on a buck. Whatever you do, don't try for the 500 to 600-yard shots that you sometimes read about. They are fiction rather than fact, and to knock over a deer at this range is practically impossible. It takes a lot of energy to make a bullet pierce big game, and one which leaves the muzzle at, say, 2600 pounds striking power, may not retain more than half that at 500 yards. Keep your shooting within the range of your rifle for results. Find out what your rifle will do, and what you can do with it. Study it; get to know it. Practice with it faithfully so that you and the gun act as a unit. When you do that you will get the most out of your rifle, and the chances are that you will bring home your buck.

3. How to Shoot Moving Game

Shooting game in motion is an art that the successful woods hunter should acquire if he wants to bring home his trophy. Of course, he can often get his elk, or deer, or moose, or antelope at rest, but a good percentage of his shots will be on game that is moving. At my suggestion, a companion began taking birds on the wing, and later, shooting at deer on the move, he bagged his buck. Had somebody not given him the idea in the first place, I doubt whether he would ever have tried to aim at any moving target. But with a little encouragement and practice he became skilled enough at wing-shooting and shooting big game in motion to go out in the field season after season and bag a good brace of birds and his buck too, most of the time.

The man who fails to try the hard shots is missing one of the thrills of hunting. Probably he will never win any laurels at shooting game in motion, but he certainly will earn the acclaim of his partners if he is able to take a running shot every now and again and bring down big game pretty consistently. Best of all, he will gain great satisfaction in the feat, for "It is the shot that counts." To take a trophy as it bounds over hurdles, jumping this way and that as running game will, especially in wooded cover, is a memory which will remain fresh for a long time.

Your trophy will not mean much to you if you take it on an easy shot. I know of many a hunter who has stepped outside his cabin and downed his buck; certainly he could take it home and prove that he "filled his license," but aside from that and the meat value of the animal, the shot meant little to him. Not that

I would advise a nimrod to take only the hard shots. Most game today requires a lot of hunting, and if you find an easy shot, by all means take it. On the other hand, if you "jump" a deer, or see one on the move that is at all in range of your rifle, don't lose hope. There lies every possibility that you may knock him over and kill him. It has been done, and is not as hard as it may appear; but like any other skill, it requires practice.

The professional crack shot practices continually. The average hunter has neither the time nor the ammunition for this, but he can become a proficient big- and small-game hunter with the rifle if he goes into the field season after season with the determination to bag his game at every possible opportunity. He must "keep plugging away" until he can consistently take game on the run. Skill with the shotgun will help, so don't neglect the bird season that usually precedes the big-game season. Get out in the field as much as you can, and try for your game on the wing. Always avoid carelessness in your shotgun work, and you will do likewise with the rifle.

When the hunter knows that he has still another shell in case he misses with the first shot, he is apt to become careless and not only miss game but waste a lot of ammunition. The successful big-game as well as small-game hunter shoots with the idea that every shot must be a bullseye. Time is certainly limited when your game is on the move, but there is usually a chance to get in that telling shot. Watch your game, and aim. Haste in raising the rifle and running the eye along the sights will lead you to shoot high. By not taking time to sight properly you will generally overshoot by taking too full a front sight.

For the most part, your game is not going to get away from you fast enough to prevent you from taking at least one good shot. Forget that you have a repeater, if you do. Make the first shot count. If you miss, decide why instantly and take the sec-

ond just a bit more carefully. Only deliberation in raising the rifle and taking aim will cure this habit. Haste in jerking up the rifle is apt to lead you also to fire when the sight first touches the target; and firing then will almost invariably result in too vague or too coarse a sight. If you toss up the rifle as you would a shotgun, it will take longer to find the sight afterward than if you raised the rifle carefully at the spot at which you intend to fire.

This brings up the interesting question of where to point the rifle on running game. I have found it better to bring the rifle into the spot at which it is to be fired rather than to shift it after it is upon the target. On running deer, for instance, the latter method will force upon you the almost irresistible tendency to fire too soon. Likewise, if you bring it behind the target, there will be the temptation to discharge the rifle as soon as the sight touches the animal. Your aim will probably be too coarse, and you will overshoot.

Game has everything in its favor. The white-tail, for instance, is an intelligent animal with a few tricks that he uses without the least hesitation. His instinct makes him jump this way and that, always trying to keep some obstacle between himself and the hunter. And that is where sighting ahead, into the spot where you intend to fire, will aid you immeasurably. Pick out the opening where you expect the game to appear, and line your sights accurately on that spot. You are then "ahead of the game" in more ways than one. You have your rifle raised and ready to shoot, your sights lined, and when the crossing game appears in the opening you are ready for him with a steady rifle and an accurate lining of the rear and front sights. If you miss on this shot, reload and swing in ahead of him again when there is any possibility to do so.

If you can carry the rifle along ahead of your game until you

catch the motion of the body, you will aid your shooting style immensely. It is like following the rise of a bird. Running deer and antelope have a springy canter, and rise fully the width of the body at every leap. Fix this fact clearly in your mind before you decide to try the running shot, and you will have that much in your favor. Raise the gun deliberately, find the opening, line the sights on the running game until you catch the motion, and then fire when it is in the air.

In brushy country running game is most conspicuous when in the air and affords the best target then. If you take your time, it will not seem so difficult. Your chances of hitting it with a well-calculated shot at 100 yards are much better than of downing it with four or five careless shots at 50 yards. It is still a running target, but by taking your time you are, to all purposes, slowing down the game in its flight—not actually, of course, but by building up that idea in your mind you are making the most of circumstances.

This is much better than taking a hasty snap-shot. To be sure, at close quarters nothing but a snap-shot is possible, but avoid these shots whenever you can. If your game is going to disappear into the brush before you can level your rifle, attempt the snap at very short distances. But never take one if you can help it, for you are wasting time in reloading and aiming again if you miss. This time would be better spent by taking careful aim in the first place.

Much big and small game has been downed just as it hit the ground, but it presents a more difficult target then, especially in wooded cover. There are times when you cannot see a rabbit, except as it leaves the ground and clears the small brush. Even the so-called “open spaces” of the West are open in name only. Trying to shoot a rabbit in country covered with foot-high

sagebrush is a hard job, and you must shoot when you see the game, which is usually when it is in the air. This sort of shooting involves some guesswork and timing, but there certainly is no use trying to hit something you cannot see. So it is well to pick the spot at which you will see your trophy and to try to down him when he is most clearly visible, that is, in the middle of one of his leaps.

I have already recommended wing-shooting, or at least getting in as much practice with the shotgun as possible before the rifle season. This is not necessary for proficiency with the rifle on moving game, but it helps. Wing-shooting and shooting game on the run are pretty much alike; they both are tough at first, but can be learned with practice. If you shoot carefully with the shotgun, you should do the same with the rifle.

The shotgun allows for a certain amount of "slack" in downing game, but if you are not holding the gun correctly you will miss. In wing-shooting with the shotgun you have to "swing with the bird," and then get up ahead of him. So with the rifle on moving game. You swing with your deer, or rabbit, or antelope, and when you get the picture of the body-motion in mind, you swing ahead to where you expect the game to appear. When it does appear there, you are ready for it, and you fire. When using the rifle, always remember it is a rifle and not a shotgun. When you raise it, get the same clear view of the sights on your moving game that you would if it were at rest. While raising the rifle deliberately, aim at the point where the animal will land, and fire while it is still in the air.

If you shoot just as the game is rising, you will miss it entirely, for the bullet will strike the spot after the quarry has left it. You must shoot ahead, and the distance of lead depends upon the speed and distance of the game. Watch for the open space,

particularly in wooded cover, and swing the rifle ahead after you have ascertained the "form" of the game, and just what sort of "track" it is making.

Deer, antelope, moose, and elk do not run in the same way under all circumstances. I have seen a deer skulk away through the brush like a coyote as long as the cover was in his favor, but as soon as he reached the open country he made a wild dash, taking it in "characteristic" deerlike leaps and bounds. Other big game will adopt varying styles of running under varying conditions. A bear has a lazy lope when taking its time, but under full steam will travel gracefully and swiftly, in long strides. Try to anticipate what your game is going to do in various sorts of cover and in various stages of flight.

Deer and moose hunting are pretty much the same; for the most part, they are done in wooded country and much of the time on snow-covered ground. The snow will outline your game to some extent, but it will do the same for the deer or moose. He too can get a better view of you. Snow gives you the advantage, however, for your game can be tracked. If you miss your quarry on the first attempt, keep after it.

When you miss a shot, analyze your failure and you will do better the next time. You will certainly have to be more cautious about your shooting, for the quarry will be more wary once you have taken a shot at it. Work your covert for all it is worth, always remembering not to be in haste. This is difficult advice to follow once you know there is a trophy somewhere in the offing, but it is much better than hurrying after your game helter-skelter. Look to your rifle to ascertain its readiness, and when signs become fresh, slow up and take it easy.

Sighting with one eye is usually better than with two, especially on the crossing shots where it is easier to estimate the distance to lead. Whether you use one eye or two in sighting,

however, make sure that both rear and front sights are lined on the target before firing. With a repeater you can correct your shooting by watching where the bullets strike. Sooner or later you will put in "the shot that counts."

4. How to Become a Wing-Shot

I have never met the man who, after downing a bird on the wing, has not been a more ardent bird hunter than ever and has not felt wing-shooting to be real sport.

Wing-shots are made. Perhaps they have a certain knack or leaning toward fancy gunning—if you wish to call wing-shooting that—but they do not become good wing-shots without a lot of practice season after season. Any hunter can bowl over a bird with a shotgun on a sitting shot, but to get a bird that is flying fast and erratically, like a grouse or quail, takes a skill that must be acquired. It is somewhat like taking your first trout on a fly. It is easy enough to get them on live bait, everything else being equal, but there is a certain art about luring and hooking a trout on a fly. So with your first wing-shot. You have found the real way of bagging birds—the sporting way—and from then on, the birds that really count with you are the ones you take on the wing.

If the beginner can get some expert wing-shot to assist him in the first stages of the sport, he is indeed fortunate. The expert can give him many a valuable pointer which otherwise might take years to master. Do not get the idea that no skill is needed in getting game with a shotgun. With the rifle the beginner usually starts, either on the range or in the field, by learning how to hold, squeeze the trigger, and call his shots. He may practice quite faithfully, for the sport seems to be worthwhile. But to the novice the shotgun looks easy, even on flying game. The gun “spreads,” and anybody can knock game

down with a gun like this. True enough, but this attitude is the forerunner of bad shooting, especially wing-shooting. Because the shotgun seems so easy, the hunter is apt to go into the field equipped with a fair enough gun, then bag a couple of birds, cripple or miss many more, and consider himself pretty good at the game. In time he gets somewhat better, what with haphazard practice of one kind or another, but he never becomes really good.

He will never develop into an expert, especially at wing-shooting, unless he overcomes some of his earlier faults. Let him procure a gun with as large a gauge as he can possibly swing, preferably the 12 or 16, and start from there. A beginner is usually slow, and the larger gauge gives him the advantage over his game in hitting more birds. Let him choose the right shot-load, and then work along with an expert if he possibly can, or practice religiously by himself.

In wing-shooting, there are two classes of shooters: the snap-pers and the swingers. Most of your shots on upland game are snaps. A snap-shot pulls his gun to a point where he thinks the bird will be, and presses trigger. A swing-shot follows the flight of the bird, and then points ahead of him just before firing. Snap-shooting for grouse is usually the better of the two, for it is quicker; but because some of your shots must necessarily be swings, it is a good idea to become proficient in both methods of shooting.

Another basic fundamental about the game is that *a wing-shot is always ready*. If you are to become an expert, you will have to be able to swing into firing pose at any given moment. Upland game, which most wing-shots start with, is some of the trickiest that can be imagined. A partridge or quail rises unpredictably and thunders off like a thing born to confound the hunter, and that is just what he will do nine times out of ten unless the

shooter steels himself to the noise of the wings and is ready at all times for that bird to rise. No matter what the circumstances, the good wing-shot is always ready to send in a quick shot when game gets up. And game usually gets up unexpectedly, unless it is being pointed by dogs, and even then you never know what to expect.

The upland gunner is usually after birds which require accurate targeting, which makes selection of the right gun important. It must be straight-shooting and powerful enough to down a bird properly. Many hunters use a 20-gauge on upland game. Most use the 16 or 12, and if you are choosing a good gun I would suggest one of these two gauges, with a barrel of 28 inches. Try to get a fairly light gun. If recoil spoils your shooting, stay clear of the 12-gauge and pick one of the smaller gauges, preferably the 16. If you cannot shoot a 16 with ease, procure a recoil pad, but for the best results in wing-shooting never pick a smaller gauge than the 16. The reason for this is simple: with any smaller gauge you will be unable to get any long-range shots, or if you do you will either miss or just cripple your game in most cases. So get the biggest gauge you can handle with ease, and learn to use it. Practice with it so that you can get the most out of it.

The modified choke for grouse hunting is usually right. Your shots are close for the greater part, and a full choke is likely to blow your bird to bits or cause you to miss entirely. A full or half choke is useful many times, but when it comes to a one-barrel gun for grouse choose the modified choke.

One of the first things a good wing-shot must learn is how to slide into firing pose without losing a second. The gun is always carried so that it swings to the shoulder naturally, without any loss of time and without causing you to spoil your aim. Do not carry it over the shoulder when you are out for game. Slipping

it down from there and swinging it on game is too awkward. One of the best ways to carry a gun is under the arm, at the side from which you do your shooting. There it is always ready for a quick out-swing. Balance yourself so that you are planted well on both feet when you bring up the gun for the shot. This is like good form in golf or any other sport; it must be mastered to a point where it becomes an unconscious habit with the wing-shot. After that the rest is easy.

When you expect a bird to rise, walk up slowly, always on the alert. Get your gun ready—not at your shoulder, like a trapshooter, but just hold it out a little before you with both hands. When the birds rise you should bring your gun to your shoulder quickly, with both feet planted firmly on the ground, your body well balanced both for that shot and for any others which may follow. Be careful not to shoot too fast. This is a fault of even the best wing-shots, especially at the beginning of the season. A grouse will get up with a beating of wings that gives an illusion of faster flight than really occurs. A man's nervous system must become adjusted to this rolling roar of sound.

A grouse, pheasant, quail, woodcock, duck, or any other bird is not so hard to hit on the wing, although to the beginner it may seem so. The bird which goes off with a terrific beating of wings seems like an impossible target. Don't try to hit him right away. Seasoned wing-shots pay no attention to the noisy rise of birds. They level their guns carefully and follow through on their swing in the same way.

Many times your bird is none too far away when he rises. If you shoot quickly, your pattern does not have time to spread and you are apt to miss your bird, or worse yet, smash him to pieces. Give him a chance to slow up, as he will sooner or later, especially when he approaches the brush for which he usually

heads. Wait for a good shot before you press the trigger, and you will then find that even on a long shot your pattern will cover the bird nicely. Make sure of your aim, and when the bird slows up, shoot deliberately. Fire quickly, but not too quickly. It takes only a fraction of a second for your pattern to catch up with the game, and the shot from some distance is the one which gives the wing-shot a real thrill.

Your grouse is looking for a landing place shortly after he flushes, for he does not fly long. When he starts to slow up is the time to shoot, even if you have a repeater, double, or auto. It is better to make one careful shot than to throw away two, even if you can get them in. Shoot, but always shoot as though you were using a single and had to make each shell count. When you fire too fast you have no time to determine which way the target is flying. The bird bores away with speed on a crazy tangent for a short space, and if you fire then you fool yourself. Wait until he settles on his way after his first wild rise, and then direct your aim. Know exactly what you are doing. Game ranges look longer over the top of a gun than they really are, and may cause you to fire hurriedly. But don't let this occur. You will have more time than your first impression led you to believe.

Of course, each shot is a problem in itself. Shooting at a bird that is flying low and straight, and gliding ever lower is a tough shot, but it can be made. On these targets the hunter is likely to overshoot. Follow your bird swinging and when he has reached what looks like the best point, swing in front and under him, and don't shoot too fast. The bird will slow up as he looks for a landing place; if he still is in the clear, this is the time to sight just below him in order to put your shot where he will fly into it. Of course, if there are two or more birds offering you a shot, you will have to take the first one very fast. It can be done.

But always aim ahead, allowing for enough lead so that the bird and the shot-pattern get there at the same time.

Lead is a ticklish problem, but you unconsciously become an expert at gauging the right lead to take on a bird. Shoot ahead on the straight-away shot. The lead you take depends upon the speed of the bird and the distance: short shot, short lead; long shot, more lead. Set formulas can be worked out, but it is best to figure it out by yourself, for each shot is different.

One of the hardest shots is the incoming target. If it looks possible coming toward you, take a good lead. Better yet, perhaps, is to let the bird go overhead and pass you, meanwhile swinging around to get him on the straight-away. This gives you more time and an easier shot all around. If your bird is heading for the trees, it is wise to try to bag him before he goes overhead. Both the incoming and the overhead shot take fast swinging and a lot of lead; when you catch up with the target and pass it the estimated lead, fire, but keep on swinging. Keep the barrel moving with a follow-through even after firing, like the follow-through on golf or billiards. By swinging ahead you do not have to take so much lead on a bird; if you stop swinging, you may shoot behind. By swinging and taking a shorter lead, you are gaining an advantage for yourself, as it is easier to figure a short lead than a long one.

A rising or climbing shot is hard, but not so hard as some. Usually a bird like a woodcock will rise like a streak and then level off. Wait until he gets to the top of the rise and begins to level off before you shoot. A woodcock is famous for his corkscrew rise, and a grouse will sometimes make the same flight in brush that he has to climb to get over. The hunter will have to be ready for any sort of shot. Each one is different, but in the end they are all the same if you are careful and watch your

bird's flight to determine where he is going before you shoot, and then give the right lead.

Don't become second-barrel-conscious. By that I mean, don't take the first shot too fast and depend upon the second to get your target. Do not develop the habit in the first place, for it is hard to break. Watch the flight of your bird and when you see what he is doing, figure your lead and try to hit him squarely.

One of the toughest shots is the crossing shot, or the bird that flies at right angles to the gunner. This is not so bad when gunning in open country, but is really hard in brushy cover and at long range. It can be made, however. Swing with your bird and then swing ahead, quickly but deliberately. If the shot is far, you will have to take plenty of lead, and if the opening is small you may have a really difficult shot. If it looks too hard, it is better to let it go, especially if you have had only a fleeting glimpse of your bird. There is no use wasting a shell. Instead, flush your bird again. If not fired at, it will not be so alarmed and may give you a better mark the second time.

A good wing-shot has mastered the technique of timing. The trained eye has an ability to *slow down* moving objects. For example, take two hunters after quail. A covey flushes, darting for cover some twenty yards away. The hunter on the left frantically gets his gun to shoulder and fires twice at the retreating targets without so much as ruffling a feather. The hunter on the right seems to have lots of time. Carefully he swings his gun to shoulder and picks off one quail quartering to the right. With the same coolness he swings his gun toward one making a straight-away flight and collects that one, too. His partner on the left has fired once again without results, and when the smoke of battle has cleared away the hunter on the right explains that it is all a matter of timing.

The one man feels he must hurry, hurry, for the birds are going off with clatter and speed and he must beat them. So he shoots too fast and gets in several shots, most of which are wild. The other hunter is wise; his eye is trained. The noise of the birds has not flustered him, for he knows that the birds are merely trying to confuse him. Nor are they moving fast. For him they are moving slowly, and with care he picks his target, leads, fires, and looks for the next bird. The whole thing is easy because the coordination of his trained eye and muscle slows down the things he has to shoot at and gives him more time at the business.

All wing-shooting, whether trap, skeet, upland, or wild-fowl, is based on three rules, each dependent on the others. They are: Lead properly on all flying game; keep the gun swinging; time your shots.

Each bird you hunt presents a different problem, but the above rules apply to them all. Pheasant and prairie chicken are easier than grouse and quail because they are slower and afford a bigger target, and are not so tricky. But you have to allow for lead on these bigger birds nonetheless, swing your gun to position, and time your shots so that you get the bird at the best angle in its flight.

The pheasant goes up straight before the hunter, as a rule, climbs some 20 feet, and then levels off on an almost straight line. It is an easy target for a good grouse shot. There is no fast dodging, this way and that. Again the bird may rise and keep rising on an even plane until well out of range. But it is a big bird and must be hit squarely to be downed. On the level-flying bird bring the gun up underneath and in front, just touching it with the front sight before firing. It is best to play the muzzle on the long climber with plenty of lead before firing.

Prairie chicken are pretty much the same as the pheasant but much warier and harder to hit. They are not so tricky as grouse or quail, but bad enough. They usually travel in large flocks and land in fields where they are hard to approach. When they travel from place to place, they generally fly high and wide and are no easy targets at this range. They are best hunted with dogs and offer the wing-shot some very fast shooting, somewhat like grouse.

The woodcock is a bird unto himself and presents a bit of a problem for the wing-shot because of his peculiar rise, especially in thick cover. He will almost always climb up steeply at a sharp angle to top the cover before straightening out. You must swing the gun after him as he rises and make ready for the shot. But do not fire until the bird has reached the top of the climb. A brief moment of hesitation on the part of the bird ensues, which is in favor of the deliberate wing-shot. Just between angles of flight from the rise to the leveling-off is the time to catch him, and here timing is really important. Time your trigger pull to that instant when your target levels off.

There is always the problem of the close-rising bird. In this case it is well to wait until it has reached a spot where your pattern will take it without tearing it to bits. When a flock or covey rises, never shoot blindly. Pick out a certain bird and try to get it. Then swing to the next one that looks like a target. When hunting upland birds you get a lot of timber shooting in rough cover and may not be able to get doubles, but they can be made and are something to try for.

Ducks are not so wily as upland birds but need accurate shooting, especially when flying high. They require more lead than is generally given them; 1 to 5 feet is usually necessary, depending upon the range and speed of the target. On ducks

coming in straight over your head a forward lead is necessary. Try to take them before they reach you, but should they pass, try them after that. When ducks rise from the water they do it quickly, and here a long lead is necessary. Swing the gun in the direction the birds are going, and then swing ahead again. They will seem like fast targets at first, but the trained eye will slow down their flight and give you a target that looks larger and is not going any too fast for a good shot.

5. Grouse Hunting in October

Thank heaven for that elusive bit of bombshell and feathers called the grouse, or partridge—whichever you like. When it's October in the uplands it's good to be out after this game bird that knows all the tricks under the sun and makes the hunt full of surprises. He rises when and where least expected, and gives the hunter a thrill with each of those alarming bursts of wing and feathers.

The northern grouse is a wily bird, and if you hunt him without a dog you must be on your toes from the first. You never know when you will flush a covey, and when you do your nervous system must be adjusted to the wild rising of the birds or you may do some wild shooting, if you shoot at all. I have walked into a covey to see one lone bird only, sitting on the edge of the feeding grounds like a statue. But when I flushed this one I raised a dozen more just back in the brush.

Before going any further it should be said that there are sharp-tails as well as ruffed grouse. The two kinds are easily differentiated; the sharp-tail is big with a narrow tail, while the ruffed grouse is usually smaller, darker, and fan-tailed. The sharp-tails range the open fields pretty much like pheasants, and are hard to get without dogs. The prairies of the West were the native haunts of the sharp-tail but it has drifted farther into the North, notably through the northern parts of Minnesota, Wisconsin, and Michigan. Hayfields, open meadows, and grassy burns seem to attract these birds, and when you run into them you will probably raise a good-sized covey. The

birds linger along the edge of the brush in places where you can watch your dogs, and once a dog spots them they lie to point nine times out of ten, presenting shots all right but not easy ones. No grouse is an easy shot once it has been hunted. And the sharp-tail is always ready to put distance between himself and the hunter.

When you run into these coveys you stand a chance of getting shots at them more than once. After putting up the covey they flush to other spots, and you try to follow them. Sometimes when they fly out of sight, you try to locate another flock. More often the covey will split up into doubles and singles and drop to the edge of the field where you can hunt them again. Some of these coveys range from half a dozen to thirty or more, and are often good for an hour or more of hunting. And very good shooting too, when you follow them with dogs. The sharp-tails can be hunted without dogs but their extreme wariness makes them really difficult game to bag in that way.

The ruffed grouse is more widespread in the North than the sharp-tail, which is a comparative newcomer to this field. The ruffed grouse is found in slashings, in old farmlands, around abandoned apple orchards, along clover-lined trails, old burns, and berry clearings. He is pretty much like a chicken in his habits, and like a chicken does not care for the wet. Hilly country has an especial appeal for the grouse; you may find him in the lowlands but for the most part he seeks the higher country in which to feed and rest.

If you are following some old logging trail that bears evidence of grouse, watch particularly at the dead end of the trail. Watch in Y's, where two roads converge. Your grouse is always looking for a place where he can "take off" when hunted, and openings in the trails give him this advantage. Hunt grouse

in half-forgotten uplands where the farms are abandoned and the wilderness is gradually taking over. Look for trails which have enough cover along their fringe to enable the birds to feed and to then slip back into concealment when approached. Grouse will not always flush when hunted. When you are in plain sight and ready with your gun a bird will sometimes scurry into the brush without rising. Generally, however, he will flush, and if you have stolen right up to him and taken him unaware at his feeding, he will go up at your feet like a rocket, with a wild whirring of wings.

There is something about the pursuit of grouse in October which gets into the blood. Then nature outdoes herself in the uplands and there is a crispness and tang in the air. Start early while the hunting is good. In most parts of the North Woods the season is no more than two weeks, but this period occurs when the hunting is best and the grouse most active. At the beginning of the season there is usually a lot of foliage to contend with and the grouse are hard to hunt for this reason. Seek them in the open part of the trails for best results, when they come down to feed, morning and evening especially.

If the foliage is dense you are going to have some trouble, particularly if the ground is covered with dry leaves and therefore noisy. A high wind is another handicap, for when the wind rustles in the brush the grouse is as wild as a hawk. Not only is he apt to spot you first but during a high wind he is ready to take wing at the least cause. Use your eyes more than your ears at these times, and also when the ground is covered with dry leaves. Walk then as quietly as you can; slowly is the best way, keeping both eyes on the trail ahead of you. Just how far ahead you must decide for yourself, but I would advise you to search the trail pretty far ahead, for the farther you spot the bird the warier your approach can be.

Be ready to shoot at any time, for grouse is one species of game bird which rises almost anywhere and in the most astonishing manner. When he has sighted you he rises off in the distance some 100 yards, or he may sometimes do it right at your feet. A man must get used to this wild rising or he will never become a good grouse hunter. During the first part of the season he may find grouse exceedingly difficult to hit for this reason alone. Later he becomes accustomed to the erratic rise of the bird, but I doubt whether any grouse hunter ever becomes so used to it that he never has a moment of indecision. He is apt to overshoot or undershoot at such times. Probably he will shoot too fast and do nothing but waste shells, and perhaps just feather the bird. Coordination of the nerves and muscles is necessary. Take your time; take good aim. Slow down the bird in his flight, figuratively speaking. There is usually time to get in the shot.

Sometimes close shots can be made without much aiming. Shooting from the hip, you might call it, without bringing the shotgun to your shoulder squarely. These shots are possible and oftentimes necessary, but most shots require a careful aim. Shoot quickly, but not too quickly, is one way of expressing it.

In gaining knowledge of grouse cover one must classify places in his mind. Birds frequent various covers and various feeds at different times of the day and of the season. To take a good bag of grouse you must first find the best hideout, and to my mind this is one of the main jobs for the successful hunter. Grouse have a way of shifting their feeding grounds, too. If there is a lot of rain and the ground becomes quite damp, you will find grouse at one place one day and gone entirely from that area the next. Wet country is not to their liking, and will cause grouse to leave and search for land that is high and dry.

If you are hunting partridge in rather heavy cover, follow-

ing very old and overgrown trails, you will be wise to look for the bird in the burns or clearings along these trails, in such places as are covered with raspberry and blackberry bushes and briars. Hunting grouse in heavy cover is a hard job and is best done with dogs. Your shots will be more frequent with a dog to round up the game.

But the trained partridge hunter can knock the birds over on the wing in dense thicket and shrubbery without a dog, and get a lot of fun out of it. The harder the shot, the longer it will be remembered. Again, don't shoot too fast. Give your bird a chance to get just so far; when you see him slowing up or putting some distance between you and him, target him. Quick short shots can often be made, but a grouse usually does not disappear before you can bring your gun to shoulder and take at least a fair aim. Aiming with a shotgun, of course, is not the same as aiming with a rifle; they are separate and distinct forms of shooting. Whatever your gun, always fire with deliberation and care.

If you cannot get your bird lined up to your satisfaction along your gun barrel, you may flush him again if you try, and this time you may be in better position to get him. Watch where he lands and head in that direction, keeping your gun in both hands ready to shoot, but not at shoulder. Be ready to swing quickly when the bird flushes. Always look for the others which may be with the one you are aiming for. If you bag your bird, pump another shell into the chamber and watch your step. There may be a covey; there is usually more than one bird. Be cautious when going over to bag the first one; birds are apt to start popping up all over the place.

First-of-the-season shooting is apt to be sketchy; the hunter forgets the lessons picked up in other years. But after a few days the specific problems presented by the canny partridge

begin working themselves out again, and he hits more regularly and brings in more game. Find country to your liking, harboring birds, and the rest is easy. Cutover country with clover-lined trails is especially appealing to grouse. Once in a while you will hit some old logging spur which is good enough for car travel. Park your car before you get very far on it, and hunt on foot. The Conservation Departments do not encourage the use of cars on side trails, for shooting from cars is the lazy man's way.

And don't forget the hills, with old dim trails running up and down their slopes. High and dry, grouse fly along these hillsides and feed in the open. When much hunted they seek the less-used trails and openings. Go for them in the popular spots, but look for them in the back country, too, where the going is harder. You may bag only singles, but they all count in the day's hunt.

The response to the call of October is almost invariably the production of the shotgun from its hiding place and the rearrangement of hunting equipment. A journey of a few hundred miles seems not too great for the sight of another covey of whirring grouse in a place called Fire-Tower Hill, Ewen, Bruce Crossing, or Kane's Clearings. Such names conjure up pictures of past grouse hunts in autumn woods. Now, though the season is not exactly open, though the plans for the trip are not very definite, the first day of hunting seems very near. And when finally the great day does arrive, the grouse gunner is there, at a spot where hunting is reputedly good.

What about guns for this bird? Doubles are excellent; automatics are first-class. For my part, I prefer the pump-gun. But they all shoot and handle well if you get to know their limitations. With the double you will probably not get in more than two shots at once, covey or no. It is a more sporting gun

than the automatic. You can get them with a single shot. Give me a smooth-handling "repeater," not too heavy.

Your gun need not be heavy gauge for grouse; the 12 is the most popular, but I would rather shoot a 16. Some men like the 20 and 28, and you can even down grouse with a .410 if you are close enough. Get to know your weapon. For all-day hunting choose a gun that will not fatigue you—an easy-shooting one with a barrel not over 28 inches. Most shots on grouse are short, and a 28-inch barrel which throws a fairly uniform and not too heavy pattern is a good gun. Don't use a choke bore if you can help it; a modified is fine, but full choke is anathema. As to shot-size, try 6's and 7's. You can bag birds with 4's and 5's, but that is a coarse pellet. The smaller shot-size will give you better shooting; 7½'s and 8's are excellent.

6. How to Hunt Ducks

One of the prime requisites for successful duck hunting is the choosing of a good location. In their migrations ducks make about the same trips year after year, and if you establish yourself on one of their regular flyways during favorable weather you should get some shooting. At least you should see ducks. If, however, you choose a poor spot for your blind, you can sit and wait all day and never get a worthwhile shot. There is something about certain waters that a duck likes. These places may not be very scenic, but they probably afford good feeding grounds with protective possibilities for the birds which they have discovered from previous flights. Some ducks inhabit certain places during the entire summer, and you can get some shooting at them, but it will be only meager compared to what is available when you place yourself strategically on one of the established flyways.

Next to location comes the factor of weather. During warm weather ducks like to stay out in the water and take it easy, without moving much. They usually select some comparatively unapproachable spot far out, and to get a shot at them is almost impossible. They have to feed sooner or later, but their actions are pretty much restricted and they present poor targets at best, mostly out of gun range.

Rough, stormy weather is just the thing, however, for the ducks try to get away from wind and waves. They will probably move to some protected spot where there is both cover and feed, and such places are best for locating your blind.

Sheltered marshes or ponds which have some brush to hide in are what the ducks usually search for, and the water need not be deep; what they want, in fact, is shallow water where feed is plentiful and where they can rest. Big marshes and lakes are too rough when the weather is stormy. Try to locate the protected areas at which ducks alight and feed; build your blind here at a spot where you will have plenty of room to shoot, and you stand a good chance of bagging ducks.

Place your blind so that the wind is at your back. Ducks usually come in and down, facing the wind, and they take off in the same way. With the wind at your back, you have the advantage of getting a good shot as the bird is alighting, and also as he is taking off. The best blind is made of material obtained right on the spot, so that it blends with the scenery. It need not be elaborate but it must be natural-looking or your duck will spot it from some distance and shy away. A duck has remarkable eyesight and can spot anything that does not harmonize with the surroundings. Do not leave any papers, bottles, wrappers, or any other kind of litter around the blind, for this is a dead give-away. Also make sure your gun and other equipment is kept out of sight of the incoming birds.

Ducks feed mostly in the morning and evening hours, and that is the time to get your best shooting. Be on the grounds before the shooting period commences, and get your blind in readiness. Get there early in the morning, but also reserve some time in the evening for hunting, for the evening hours are even more productive than the morning. The birds are especially hungry and active then and are on the move, flying off to the places where they can feed before nightfall. If you are at their favorite feeding places at such times, you will probably have good shooting. Midday shooting is usually poor, for ducks generally rest then and are hard to approach. They

like to feed in flooded wheatfields, cornfields, and wide rice fields where the water is shallow and marshy. In the morning the shooting should be good for two or three hours after sunrise, and in the evening for the same length of time before sunset.

If you use decoys, have them out early and use plenty of them; half a dozen or more are better than two or three. They are more easily seen than only a few, and may bring the birds in close. They must look natural and inviting to the birds flying overhead. Set your decoys about 25 to 30 yards from your blind, within fair shooting range. If the distance between the blocks and the blind is more than that, the ducks may drop down behind the decoys and keep out of shooting range.

If you can obtain a good duck call and use it convincingly, you may be able to lure more ducks to your blind than without one, but a duck call is not necessary nor is it always productive. Ducks are exceedingly wary when shot at, and if your duck call does not ring true it will actually drive off the birds.

Special guns are used for the best hunting of ducks, usually the larger bores such as 12's or 10's. These gauges are not necessary for good duck shooting, however, for if you have a straight-shooting 16 or 20 with the right choke and load, and handle it skilfully, you can get your share of birds. The most deadly gun for ducks is usually the 12 bore, weight $7\frac{1}{2}$ to $7\frac{3}{4}$ pounds, modified choke, double or repeater. Many duck shooters prefer the full-choked gun, but the man is rare today who can do his best shooting with a full-choked gun. Most shooters require a little leeway in spread of pattern, and this is obtained in the modified or improved-modified barrel. The best shot for ducks is 5's or 6's; with a modified barrel using this load, the duck hunter can kill ducks uniformly at 50 yards, which is far enough. Ducks can be taken very nicely with smaller gauges

too; and if you are the average hunter who owns only a general-purpose weapon, your gun will be deadly at duck shooting if you never attempt to exceed the range at which you have found it will kill clean. It is safe to say that the best upland gun is rarely the best for ducks, but if you get to know your gun you can use it to good advantage on both upland game and ducks.

If you have any choice in the matter, your gun should not be too heavy. The general-purpose gun which is good for ducks should weigh about $7\frac{1}{4}$ pounds, not much more. Theoretically, guns should be selected for the particular purpose you have in mind. No matter for what game you use your gun, however, you do not want a weapon which will tire you out, and a heavy gun often does this for the average hunter. Get a gun light enough for you to handle all day without fatigue. If you are choosing your gun especially for duck hunting, get a 12 if possible with a 30-inch barrel. Your partner, however, may use another style and still get as many ducks as you.

This brings up the matter of lead in duck shooting. Wing-shooting is by no means an exact science. What is the right lead for one man may not be right for another. The successful duck shooter must learn swing-shooting; he must learn to bring his gun up at the duck and then swing it in front of the flying bird, before pressing trigger. Just how far this lead should be is a matter for each shooter to decide for himself. If the duck is coming in slowly, the lead should not be so great as if he were coming in fast. Another thing to consider is the speed at which the hunter can bring his gun to bear on the target; some shooters are fast, others slow. It is all a matter of trial and error; you must find out for yourself just what lead to take. Follow the bird with your gun, and then *swing ahead of him* before you shoot. Remember this: the bird missed by being overled is the very rare exception. If you are missing, take more lead. And



PLATE 7

Upper left Establish yourself on a good duck fly way and you should get so shooting. Upper right Winging into gun range. Lower left A perfect retriever. Lower right Good dog!



PLATE 8

r Check your rifle before you start on the hunt. *Lower* A beautiful whitetail buck.

don't accept anyone else's formula for the correct lead; find out for yourself what lead you will need.

In any kind of shooting if you have a good gun or even a fair one, take good care of it. Clean it after the day's hunt and keep it in a dry place. Any amount of shooting you can do will not harm your gun; letting it rust will do the damage. Clean your gun from the breech, if possible. First push a cloth patch through the barrel to remove loose fouling. Then put solvent on a cleaning brush, and scrub the bore well. Next run solvent-saturated patches through the barrel until the last one comes out clean. Then run a cloth through again, with oil or grease on it. Use oil if the gun is to be used again within a month, and grease if it is to be laid away for a longer time.

Be careful not to mix gauges in your shotgun shells. If you are shooting a 16, carry only 16-gauge shells. A shell of a smaller gauge can slip down past the chamber and lodge in the barrel if you are carrying mixed gauge shells in your pocket. Another thing to remember is to make sure there is never any obstruction in your gun barrel, such as greased rags to keep out rust and moisture (a dubious practice), snow and ice, dirt, or anything else.

Carry your gun in a wool-lined case when it is not in use. Cases protect guns from weather and they also discourage accidents. A cased gun stays in better condition too, for it is saved many dents and scratches; above all, it does not get rusty so easily, especially if the case is wool-lined. Guns are valuable; with care a good one should last you a lifetime and afford you a lot of good shooting.

7. How to Dress for the Hunting Trip

CLOTHING OF HEAT-RETAINING VALUE

When dressing for the hunting trip or any outing in cold weather, it is well to remember that the ideal materials for clothing are all of animal origin—fur, feathers, and wool. Garments made of these three materials are warm and comfortable, for they retain the body heat. They are excellent insulators, and when worn in successive layers they have a dead-air space between them which retains body heat.

To simplify the problem of keeping warm in cold weather, it is well to obtain the materials which have this heat-retaining value and then wear them in successive layers, or plies. Wool, for example, is one of the commonest of these, and by wearing two suits of light wool underwear you keep warmer than by wearing one heavy suit. Wool is warm enough for the hunting and camping trip. Even warmer and lighter but much costlier and harder to obtain at present, is the jacket insulated with waterfowl down. It is light and serviceable, but not necessary when you can get wool.

Dress warmly on your hunting and fishing trip in cold weather. There is one thing you must guard against, however, and that is dressing with too much bulk. Cold weather is oft-times cold in name only. So take enough clothing to keep warm, but have several garments which can be donned or removed at will. Dress for the weather wisely but not too well. Angling, hiking, hunting, and camping are sometimes strenuous sports with enough action to bring on perspiration, and the person

dressed too warmly may catch cold when he removes his heavy outer clothes. And do not forget that the weather moderates from time to time even in midwinter. It is far better then to take several lighter garments than one heavy one. You can always pack your extra clothing, but if you have to wear all of it at all times, you will regret it when the weather warms up.

Let me point out here that cotton should not be worn much for either under or outer garments. It absorbs and holds moisture to a great extent, for it is a poor insulator. If you are dressed in wool you can be soaked to the skin and still be comfortable as long as you are active. Not so with cotton; in cold weather it becomes damp and clammy especially when used for undergarments. Some wool may irritate the skin, but not the best grade.

The points to be considered in acquiring outdoor apparel at all times and especially in the cold season, are warmth, wear, and appearance. Get garments that will stand hard use, that show soil the least, and are at the same time comfortable in both action and repose. If they dry out easily in camp or on the trail, so much the better.

Mackinaw Material

An over-all coat of mackinaw is always a warm and hard-wearing outfit. Get it of virgin wool, with trousers or breeches to match, and you really have something reliable. The North Woods lumberjack wears this sort of garment, and for most cold-weather camping you can depend upon it and never go wrong. Mackinaw is soft in texture, very durable, and almost rainproof. It can be worn comfortably from September to May in most northern climates. Be sure to look to the manufacturer for quality. A good mackinaw must be all-wool, with no mixture of cotton. Anything else should be rejected.

Select a coat that is plenty large enough and that can be filled in with several plies of undergarments. It should fit loosely throughout. Get trousers or breeches with plenty of room in the seat and knees, and with these places reinforced for wear and comfort. The waistband should be loose as well, to allow clothes underneath to fit easily. Wear wide suspenders or belt.

Woolen Shirt

Get a good all-wool shirt of sturdy material, strong yet soft in texture. It need not be expensive. You can get just the article you want in the general store of any resort town. In some regions the stag shirt is popular and very practical. The lumberjack prefers it, and he knows. It can be worn either as an outside garment or as a regular shirt. It is lighter than a coat and still keeps off rain, and it is warm to boot. Remember that your shirt and all other clothing must be loose-fitting for warmth outdoors. Successive layers of garments fitting loosely will provide the best insulation.

Parka

A garment highly favored in the North is the parka, perhaps not the one used in Alaska and Canada and made of valuable skins, but the more modern one of airplane cloth. This is a wind-breaking, rain-turning, lightweight outfit, both in coat and breeches, which can be utilized very nicely in cold weather. It is equipped with a hood which can be worn up or turned down at will, and has a belt or draw-tape which, when fastened, keeps the coat from ballooning in the wind.

To be most practical this parka coat should extend midway between waist and knees; the breeches should be long enough to tuck into the boot tops, or at least to reach them. Like so many other practical outdoor clothes, this can be adjusted to

all extremes of weather by having it lined or unlined. The lining is wool coating or blanketing. At one time the parka was restricted to the Far North, but it is now being used wherever sportsmen congregate.

Footwear

When it comes to the matter of footwear for the cold months, especially when the trail is wet, low leather-topped boots with rubber bottoms are best. Get them in a size big enough to allow three pairs of woolen socks to be worn. Do not get high tops; a boot 9 to 14 inches is best for hiking.

Some campers prefer leather boots. These are comfortable, particularly in dry weather, but when the weather is wet they should be oiled and greased thoroughly. One of the best is the full-grain leather of the moccasin type, with non-slip sole and heel. Do not buy high-top, heavy-soled boots; they get heavy after a couple hours of walking. A light hiking shoe, on the other hand, will leave your feet cool and rested after a hard day afield. Break boots in gradually, and keep them in a dry cool place when not in use.

Another piece of footwear well adapted to cold weather and especially comfortable in canoe cruising and snowshoeing, is the moccasin. It is unexcelled for a wet-weather change, will fit nicely into the outfit, and take very little room. Get a pair made of selected heavy waterproofed leather for best results; this kind is pliable and firm.

Socks

Your socks, like your coat, breeches, shirt, and underwear, should be woolen. Two to three pairs are enough, with an extra pair for a change. Get them graduating in size, and wear the smallest on the bottom, and the bigger ones drawn on top. In

this way you avoid constriction and get greater warmth. Enough comfortable socks give the feet a padding which takes the jar out of hiking. Pull the heaviest pair outside your breeches, and turn down.

Mitts

Mittens or gloves should be included in the camper's pack in cold seasons. Of the two, mittens are the warmer since the fingers can be moved freely and the mitten heated by the whole hand. For the hunter, mittens of warm red wool with an opening for the trigger finger are practical; better still, get them with leather over the front. If the weather is not too cold, an inexpensive pair of red canvas or wool gloves with leather front can be worn to advantage. For extra-cold days one of the warmest and driest combinations is a pair of woolen mittens worn under a pair of horsehide "choppers." Such a combination is very serviceable for doing the chores around camp in winter.

Headgear

Unless the weather is very cold, a wide-brimmed, good felt hat is practical, preferably khaki in color. For most trips in spring and fall, this is warm enough. For winter camping, however, the all-wool or leather hunting cap with ear laps and visor is a necessity. A cap like this, in red or red-and-black plaid, shows up well in the woods, which is desirable during the hunting season.

BLANKETS AND SLEEPING BAGS

In blankets, one must consider the problem of getting the most for the least bulk and weight. To preserve the body heat in bedding as well as in clothing, one must look for the fabrics which are the poorest conductors of heat. Again we find that wool, feathers, and fur are the materials to depend upon.

Eiderdown robes are almost perfection in sleeping bags, filled as they are with the light and fluffy feathers of the eider duck, insulation par excellence. These robes are naturally costly, for the material is hard to obtain. Get such a robe if you can, but do not feel bad if it is out of the question; very warm and lasting robes can be obtained in such materials as kapok and wool. Fur bags too, lined with rabbit skin sewed on wool blanketing, are very warm and durable. Another good bag material is caribou skin with the hair inside. The skin keeps out the wind, and the skin and fur both act as insulators against the cold.

Sleeping bags are compact and efficient outfits and should be considered for cold-weather camping. Get as serviceable a bag as possible; one from 16 to 18 pounds in weight should be warm enough for the coldest weather. The outer cover of your bag should be strong, lightweight, and waterproof, but not canvas, which is heavy and obsolete for both bags and tents. Many of these bags have a canopy top which acts as a duffel cover when rolled up, and are equipped with carrying harness attached to bag.

In lieu of the bag, 16 to 18 pounds of wool blankets should see you through severe weather, when used with a tent. Long-fibered pure wool blankets are the best. When wrapping up in them for the night, try to arrange them as much like a sleeping bag as possible, with no gaps for the cold air to creep through.

Always carry an extra supply of clothing. Carry one extra suit of wool underwear, one extra pair of socks and mitts, and one extra shirt. Pack all extra clothing in a bag by itself where it may be reached easily.

Fishing

8. Live Bait or Artificial

When I go fishing I like to catch fish. It certainly is no fun to fish without catching anything. Like many others, I started as a bait fisherman but later began taking my quarry with artificials as well.

Knowing there were reasons for both methods I decided to learn them and use that knowledge to best advantage. The truth of the matter is that both methods of fishing are necessary for best results as anyone will testify who has given them a fair trial from early spring until late fall. It seems to me that the man who wants to take fish the year round will work both means for all they are worth. So why not become conversant with both live bait and artificial, or at least be tolerant of the angler who uses either means?

Many anglers use both sorts of lures and are experts with them. They take fish on artificials when the mood of the fish and the conditions of the water seem to warrant that type. And they use bait when bait seems to be the order of the day, notably in early spring.

Trout will always accept natural bait. When the season opens and the waters are high from rains and melting snow, trout will take worms and minnows with zest, even though their bellies are already filled with them. But they are not always bottom feeding, nor do they always prefer live bait. Along about the middle of May they begin to take the flies that are hatching, and the man who is on the stream with a fly that looks right and is handled right will have the advantage over the bait-fisherman.

Spring waters are cold, and trout not so active then as later on when the waters rise in temperature. And as the temperature of the water controls the beginning of the insect hatches, so the appetite of the trout changes and he begins to look for insects. Give him the right artificial and he will take it. Possibly he will take worms too, but not with the same avidity. To keep on fishing with live bait at such times is discouraging.

Sometimes the trout are dimpling the surface, or feeding just under the surface. This sort of situation is puzzling, especially to the beginner who is using natural bait and not getting results. The answer is that the trout are feeding on minute insects such as nymphs, and have no time for live bait—certainly not for worms which go to the bottom. The open-minded angler will find out what the trout are taking by examining the stream bed for signs of insects and by trying to simulate those insects and their actions with an artificial skilfully handled.

Later on in the season, too, the trout are jumping for the mature insects such as flies, grasshoppers, and locusts. At this time the bait-fisherman is distinctly at a disadvantage from more angles than one. For instance, earthworms are hard to procure and harder to keep. Insects that fly may be used, but they are not readily available. Of course, he may fish the spring holes, and this is his best bet. But why not go after the fish with flies or other artificials? These are usually handled with greater effect than naturals and often prove more killing. The user of artificials often takes fish when natural bait fails to produce results, and often when natural bait is being freely taken.

The stream itself often makes a big difference in the method to be used. There are the so-called "jungle" streams which are literally overhung with brush and can be fished with wet flies or "dapped" with dry flies. They yield good fish, and to neglect them is not a wise idea. They are best angled with bait, though,

and catches may be made here the season through with nothing but worms. The fly-fishermen will probably avoid such streams entirely.

During the summer months the trout in some of these streams go to the spring holes, and to try to take them elsewhere is almost useless in the heat of the day. You must get your bait down to them; use worms, chub tails, crawfish, or minnows, or entice them with some wet fly fished deep. In either event, artificials do not work here like live bait, and it is well to keep this in mind when going into the deep woods where these streams are so abundant and hold so many nice fish.

To try to take bass with artificials at all times is discouraging. The wise angler recognizes this fact and goes after them with live bait when they are in deep water. If they are not too deep, the deep-going lures cast or trolled may bring them along, but often as not you will find that a well-handled mud-minnow, frog, or lively shiner let down to them will be much more effective.

Artificials must be kept in motion, and in some of these deep spots this is hardly possible for many reasons. Some waters are exceptionally weedy and snagged with brush, and it is exasperating to be forever unloosening your lure. When the hot sun is directly overhead and the waters glassy, it is much more convenient to use live bait, and sometimes this is the only way you can take bass. It is sportsman-like if you give the fish a fair chance, and certainly common sense if it produces results when nothing else will.

When bass are in shallow water they are noticeably wary, and surface artificials bring much better results than live bait. You still can use live bait such as frogs, bugs, and the like, but it is not necessary nor is it good practice. Bass come to shallow water for the purpose of feeding, especially during the evening

hours, and you can entice them much more effectively with a well-handled surface artificial than with bait or an underwater lure. The lure will have to be handled with delicacy, and the terminal tackle must be fine enough not to be detected. Moreover, you must place your lure skilfully and in the right place.

Pike and pickerel will take bait most of the time, but not always. Minnows and frogs are good, and worms will almost always do the business. Large minnows and suckers, well kept and well handled, will take the big fellows. Give pike and musky artificials for a good part of your fishing, especially when the waters are rough and the fish active. But in the doldrums you will not see the versatile angler using artificials entirely. When your guide takes you for musky, he usually has several live suckers in the minnow bucket and fishes them slow and deep to good effect.

9. Tackle for the Fly-Fisherman

THE ROD

The function of the fly rod is to pick up an extended piece of line, wholly or partly on top of the water, to throw it out behind the angler and then forward again, with the least amount of effort on his part. Of course there is no such thing as a perfect fly rod, but it does not have to be perfect in all respects to be the right rod for the individual angler. If you get a rod with which you are completely satisfied, it is the rod for you, and your chances are as good as you could want. For dry-fly and for wet-fly fishing, the rods should be of different action. In a dry-fly rod the greatest action should take place lower down than in a wet-fly rod, which means that the tip joint will not be so stiff in the wet-fly rod as in the dry. A very stiff tip in a wet-fly rod is bad, for it is not quick enough and leads to missing rise after rise.

In selecting a fly rod, try it out by holding it in the hand and bending it back and forth. Use only the hand and wrist, and watch as you bend where the greatest action takes place. Bend the rod at a fixed point from side to side, in a steady curve, with the tip describing an arc of several feet. Choosing a fine fly rod is not an easy matter for either the beginner or the skilled angler. Perhaps the simplest and best plan is to consult the catalog of some well-known fly-rod manufacturer. Write him about the sort of rod you have in mind, the approximate price you will pay, and trust in the judgment of such a manufacturer to send you the best rod possible for the money. Better still, of course,

is to have an experienced fly-fisherman accompany you to a good tackle dealer and help you in your selection. It is desirable to get a rod for wet-fly and one for dry-fly fishing, but if that is impossible, one rod can be chosen to serve for both.

It is not necessary to go to a craftsman to obtain a good rod. But if your partner has a certain rod which feels right to you, do not expect to order one of the same make and get the same action. Each rod has an individuality of its own, because of certain differences which are bound to creep in during the process of manufacture.

Split bamboo is the best material for fly rods. There are other materials such as damata, greenheart, lancewood, etc., which are used, but they do not approximate the smooth action and durability of six-strip construction split bamboo. Get the best rod you can afford, for it is the rod in fly-fishing which really bears the brunt of the sport. A good rod with proper care should last you for many seasons and give excellent service.

Avoid heavy guides; they affect the action and are certainly not wanted in a fly rod. The best guides in a fly rod are German silver, hard steel, snake construction, of $\frac{5}{16}$ inches.

A two-piece is preferable to a three-piece rod; it has better action, even though it is more apt to break. It is not so handy in an automobile, but it is better on the stream, which is the main thing. Perhaps there is little use in detailing the fittings of a fly rod, but let me describe a very good one: The hand grasp is of solid cork discs over a core of wood. (Some grasps are one-piece cork.) The reel seat is of German silver, which has the advantage of soon losing its brightness. The windings are of red silk, put on in clusters. It is 9 feet long and weighs 5 ounces. It is used primarily for dry-fly fishing and has interchangeable tips.



PLATE 9

Upper left This first Spring outing was on a wet day and the stream flooded. *Upper right* Avoid snags if possible, but fish for Spring trout in deep water where they are feeding. *Lower left* A telescope rod is handy taking trout. *Lower right* Fish deep holes with a swift current.



PLATE 10

Fly-rod and fly-reel should balance—which fly? *Lower left* A 6-pound
 1 Brown was taken with wet-fly and with good fly tackle. *Lower
 right* Landing a big one with good fly tackle.



Upper Trout are wary in hot weather. A canoe is useful in reaching diff spots. *Center* Fishing for rainbow trout on Manistee River, Michigan. *Le*
The dry-fly angler comes into his own in midsummer.



PLATE 12

Excellent trout waters. *Lower left* Another beautiful trout stream.
right Just below the falls, the water is enervated and trout are looking
for food.

Care of Rod

The next thing after obtaining a good rod is to take care of it. Many a rod has gone to ruin through carelessness on the part of the owner. Before being stored away for the winter, it should be checked for loose ferrules, unwound silk, or marred varnish. Never store it away without first getting it in good condition.

Check over each section of the rod, and first test for loose ferrules and tip-top. If loosened, they can be taken apart and tightened. Heat the metal with a match—not a gas flame which is likely to overheat the metal and remove the temper—and detach. Then scrape the bamboo with a knife blade, removing old cement but being careful not to harm the bamboo. Heat the cement, and place a liberal portion on the part that is to hold the ferrule. Then heat the ferrule again, slip the metal over the glued spot, and shove firmly into place. Allow it to cool.

Next look over the windings. Windings which hold the guides in place should be neat and tight. If they are at all frayed, renew them entirely and rewind rather than patch them. Check and repair all windings now in turn, and when complete, use a color preservative to save their beauty.

If the varnish is checked and marred, these spots may be touched up with a high-grade spar or rod varnish. It is better, however, to scrape the rod completely if varnishing is necessary, and to revarnish the whole rod.

THE REEL

A fly reel is of different construction from a bait-casting reel. It should be light and should hold about 50 to 75 yards of line. The click should be strong enough to prevent the spool from over-running and causing a backlash when the line is stripped from it. The drag may be applied to the reel by a turn

or two of the screw which adjusts the click, setting it to whatever pull the hooked fish seems to require. Get a reel which will balance the rod well; it must not be too light and not too heavy. Fly reels should be mounted below the hand grip instead of above as in bait-casting, and should be attached so that the handle will be on the right when the reel hangs below the rod. Look for quality rather than beauty.

As to automatic fly reels, there are several makes but they do not seem to handle well with a rod lighter than 6 ounces. Many fly-fishermen, however, use this type of reel. It requires just a touch of the lever and the line retrieves quickly. The automatic reel is appreciated for taking in line when a trout is hooked. It is more apt to get out of order than a single-action, of course, but is worth investigating. It must be used to some extent before its qualities and limitations can be discovered. It should be wisely protected, especially from rust and dirt.

FLY LINE

In fly-fishing, the line is employed in connection with the rod, to cast the fly to some given distance on the stream. In bait-casting, the lure aids in shooting the line from the rod out on the water, but in fly-casting there is no weight to speak of in the lure and the line must be heavy enough to do this. If the line is not heavy enough, it will not bring out action in the rod and will not carry through the air as desired. If the line is too heavy, it will be difficult to pick up from the water. Line and rod must be matched for utmost performance. It is readily seen then that the same weight line should not be used with a light rod like a 3½-ounce, as with a heavy rod like a 6-ounce.

If your tackle dealer has a supply of test lines from which to select, the matter of picking the right line for the rod is comparatively simple. If he does not, however, it is wise to seek the

advice of some skilled fly-fisherman. In fly-fishing it is rod and line which must be selected with utmost care. A poorly balanced outfit will soon result in actual fatigue, but one which is balanced throughout is easy on the wrist and nerves in general and can be cast for long periods without exertion. It almost casts itself.

The best lines are oil-finish, silk, hard-braided, tobacco or amber in color, tough and yet pliable enough to go through guides easily, lie on the water lightly, and be picked up in the same way. For the dry fly such a line should be well greased with material such as deer-fat which will float it and aid in picking it up from the water. Dry flies must be treated in the same way to keep them above the waters; otherwise they are wet flies and must be fished differently.

A double-tapered line is best for fly-fishing. It can be changed end for end. A level line is all right, but a double-taper casts much better, and although more expensive seems to be worth the difference. It is easier on the wrist and places well.

A good fly-line should last many seasons. Keep it well greased at all times, and when it is not in use hang it away in large loops in a room of moderate temperature. Watch especially not to mar the finish by stepping on it, and when winding the line on the reel be careful not to snarl the line. Before pulling it on the reel, lay it out in large loops.

10. How to Become a Bait-Caster

That you can become a bait-caster through experience is true enough. But to become expert at the sport, the angler needs both instruction and practice. You can pick up a rod and within a short time manage to cast a plug with fairly good results, but what usually occurs is a lot of backlashes and vexation. Some people acquire the knack more quickly than others, and some have such a strong desire to fish that they learn, knack or not. The better your casting when you use artificials, the better your chances are of "hanging" a good string of fish. The ability to drop your lure in the right spot is a distinct advantage in taking fish, and to do it with finesse is something to be highly commended. Sloppy casting will scare away the quarry, but clean, skilful work will do wonders in enticing the fish to strike.

Get an expert to assist and you will not have to unlearn a lot of errors later. And after you have mastered the rudiments, practice and more practice will make you a bait-caster par excellence. You will be able to cast tirelessly and skilfully all day.

ASSEMBLING THE TACKLE

Make sure your tackle is set up properly before you attempt any casting. Line up the guides, first on the two upper sections of the rod, if a two-piece, pushing the ferrules together without twisting. Next line up the guides on the lower section with those above, and joint these ferrules with the same pushing movement.

Next slip the reel on the rod, aligning it with the guides of the

upper sections, so that the handles of the reel are on the right. Fasten the reel tightly, placing the reel clip flush with the reel seat, and screwing the thumb nut firmly. Some rods have a finger hook and reel lock combined. In this case, slip the reel lock over the top reel clip and pull firmly over it. Most modern rods have detachable offset handles, but there are many that do not. Many have reel clips and finger hooks combined, with the straight handles, and many have straight handles, with reel clip and finger hook separate. Whichever you have, make sure the connections are firm.

After the rod is assembled, wind the line on your reel and run it up through the guides. Attach your wire leader, and your rod is ready for lure and subsequent casting.

POSITION OF THE REEL

The reel, which is the most important part of your bait-casting outfit, must be on top of the rod. But bear this in mind, at the same time: The reel is seated that way, but it is not cast that way. On the contrary, when casting, the rod is tipped to the left a quarter turn, so that the reel is in a vertical position instead of a horizontal one when the line is cast out, with the handle of the reel pointing straight up. The reason is that with the weight on the lower bearing, the spool spins more easily; also with the reel in the vertical position, the wrist is allowed to move more freely. You can cast with the reel in a horizontal position, and many anglers never do it in any other way, but the wrist is cramped in this manner and it is decidedly poor form.

GRIPPING ROD

How to hold the rod is the next important question to be considered. The only recognized way to grip a bait-casting rod is as follows:

Hold the rod in the left hand. Now, just above the reel—with right hand—crook your index finger over the finger hook, with your hand palm down on the handle of the rod. Close the three last fingers over the cork grip, at the same time allowing your thumb to press against the flange (inner side) of the reel. You now have a good grip on your rod, and it should never slip out of your hand in this position, no matter how hard you cast.

Most casting rods have the finger hook and offset handle, which makes for better casting, both in balance and in grip. But if your rod should be without this feature, the index finger still comes to rest in about the same place, with four fingers gripping the handle instead of three. Your grip does not have to be severe; on the contrary, keep your fingers clamped just tightly enough so that your wrist will be free and relaxed, for free wrist action is essential to good casting.

THUMBING

When you are ready to cast, reel your lure up to about 10 inches from the tip of the rod. If you have an anti-backlash reel, you will have to experiment with this feature. On this sort of reel there is a little screw which is adjusted to a position where, with the lure at a certain point about 10 inches from the rod tip, it will run out slowly by itself when the rod is shaken lightly. You will have to experiment with the anti-backlash reel, and with each weight lure this adjustment will have to be changed somewhat.

Now, with bait near the tip of the rod, press the thumb firmly on the flange and point the tip of the rod at the target. But do not cast yet. You have the feel of the rod and are ready to cast, but are you going to release your line so that you will strike your target and not backlash? This is where the thumbing feature comes in. (With an anti-backlash reel adjusted properly

you do not have to thumb reel, but it is better to learn without the benefit of this feature.) Thumbing controls the speed of the reel and is very important. If you cast the line with your thumb pressed firmly on the flange or line, your cast will be short. If you cast it with your thumb pressed loosely on the flange or line (flange is best), you may produce a backlash because the spool of the reel turned faster than the line went out. To many beginners this fundamental of thumbing is difficult to master, but with practice it soon becomes entirely automatic. It is the check on your line.

Bring the rod up, thumb on flange, to a point straight back of the shoulder, with your arms bending easily at the elbow, wrists relaxed, and you have the feel of the cast. Your line is checked by your thumb. When you cast, the pressure of the thumb on the reel is released as the rod passes the perpendicular. As the lure travels out, the thumb is kept lightly on the flange all the distance of the cast. Just how lightly is a matter of practice and more practice. Perhaps backlashes will be many, but everybody gets them, at times even with the so-called anti-backlash reel.

WRIST ACTION

In casting distances up to 100 feet, wrist action is all that is necessary. Do not try to bring in the whole arm or create body action; it spoils the accuracy of your cast and is bad style. Rather, as the rod is snapped back and forth, action should be entirely in wrist and forearm. The elbow is held close to the side of the body, not outward. All movement is in a short swing from the wrist and forearm, which will not tire you. It will give you accuracy to the *n*th degree and all the distance you need for the average cast.

As to your hand, it opens as the rod moves back, with fingers on the handle of the rod, but as the rod is brought forward the

hand is closed again. This opening and closing of the hand gives power to the tip of the rod and also allows free wrist action.

THE OVERHEAD, OVERHAND, OR FORWARD CAST

I mentioned bringing the rod back over the shoulder. This is the action in the overhead cast, the one most employed in bait-casting. The side cast and underhand cast may be mastered later if you care to use them at all, but first learn the overhand. This may be the only one you will ever need.

Let us say your position is in a boat, with the weed bed or other fish hideout about 30 feet away. This is plenty far enough for the first cast. With the thumb firmly pressed on the flange of the reel, point the tip of the rod at the target, just as in aiming a pistol. As you bring the rod back over your shoulder, you will feel the rod begin to bend with the weight of the lure. Now as you still feel that bend, snap the rod forward smartly, keeping your eye on the target, and just as you feel the rod straighten,—when all the flex has left it,—with your target lined properly, release the pressure of the thumb on the reel, but not entirely. If you do, you may get a backlash. As the bait travels, thumb the reel to a certain extent. Just how much is a matter of judgment and comes with practice.

As the cast is finished, the thumb presses shortly on the flange. This action causes the bait to stop dead, and gives it that *plop* which is so conducive to arousing your quarry. If you wish to give the bait a smarter *plop*, jerk the rod just before the bait hits the water. As your line is stopped by thumbing, the rod tip is usually pointing upward, at an angle of about 45 degrees.

REELING

Now you must employ the left hand. As you are casting, it is partially extended to pick up the rod. As soon as the lure hits

water, the rod is shifted to the left hand, so that your right is ready to work the reel handle. This shifting process becomes automatic, just as does any other operation of casting. If you are fishing into weeds or snagged water, this shifting process is best done instantly so that you can retrieve the line before the lure becomes snagged, especially if it does not float. Begin reeling in slowly or fast, as you see fit, and if your reel is not level-winding, control the winding of the line by guiding it on the reel with the left thumb.

It is well to practice casting about 30 feet for some time. When your casting becomes automatic and easy, the distance can be lengthened to 50 and 60 feet, which is about all that any bait-caster will need for the average run of fishing. Try for distance if you will, but long casts are not necessary. It is better if your boat or your position on the shore is close enough to your fish hideout so that you can make short casts, for they are most accurate and most productive, too. Also, with short casts, you will not snag so often, since you have better control of your bait.

SIDE CAST AND UNDERHAND CAST

The side cast is often necessary when fishing from the end of a boat or when casting from a brushy shoreline. The rod is simply brought back to the right side of the body, parallel with the water, and the bait is then whipped forward smartly in a side swing instead of an overhead swing, as described in the overhead cast. The reel, however, in this cast, is on top the rod, instead of on the side, as it is in the overhead cast. This side cast is not so accurate as the overhead drive, but is useful on occasion.

The underhand cast is another simple one, which is made by bringing the rod to the left side of the body, with the rod tip

pointing slightly downward. The rod is then whipped smartly out across the body, and the pressure on the reel released when the rod is pointing at the target, usually straight ahead.

Neither the side cast nor the underhand is to be especially recommended, except where physical conditions of the terrain demand, for both are dangerous when more than one person is in the boat. They are not accurate, nor good for distance, either.

RETRIEVING LURE

When retrieving bait, do not forget that most reels are quadruple-multiplying and that they take in the bait very quickly under most conditions. Beginners are apt to retrieve too fast, and may lose fish as a result. During the warm months, fish are not so quick to strike as they are when the water is colder, and a slow retrieve may net the angler more of them. This is a feature to be watched, for it is only too natural to turn the reel handle quickly, in the hope of getting more fish. It often brings just the opposite results.

Above all, try to give your bait the appearance of natural fish food; vary the speed of your retrieve from time to time to arouse the fish if they are not in the striking mood. When you do get a strike, by all means set the hooks at once. Make sure, however, that your fish has the bait securely, that he really is striking at it or has it in his mouth, and then thumb the reel tightly and snap the rod up with a quick flick of the wrist. This will suffice for bass, pike, pickerel, and the like. However, if you have a musky on, or a very large northern pike, you will have to give the hooks a mighty strong jerk, though not enough to break the line or snap the hooks, for these fish have bony mouths and the hooks will have to go in deep to catch.

PLAYING AND LANDING

Keep your rod down low, even when retrieving, for this position helps you in setting the hooks. Especially when you have a fish hooked, be sure it is kept in this position or you stand a chance of losing him. For one thing, with the rod up too high the fish has a chance to come to the surface too easily and spit the hook or break the line. Keep your rod tip down close to the water, and you will more easily hold the fish where you want him—down low. Of course, fish will come up and break water, and leap high in the air at times, but it is best to keep your rod tip down even then if possible, and also try to keep a tight line on him, unless he starts on a wild rush. In that case, by all means give him line and let him run. But at the end of the rush, take in the line quickly again and keep your contact with the quarry close and firm. Never let your line run slack; keep the fish fighting your equipment at all times. With careful handling on your part, good-quality tackle will take almost any kind of fish for which it is suited if you play him right. Light tackle will take big fish when used properly.

Wear your fish out. Let him go when he is on the war-path, but when the opportunity presents itself, begin working him in close, and when at last you have him within handling distance, try to land him. How? Many writers tell you to use a net, and so will I, to keep strictly within theory. But I must confess here and now that I have never used a landing net for either stream or lake fishing, and very seldom have I felt the necessity for it. But get one if you will. They are handy, and may save you some fish and some scratches. If you do not have one, however, and are landing a small fish, shift the rod to your left hand when you see the quarry is tired out, grasp the line by the leader, and swing the fish slowly in a few looping arcs. At the end of

one of these swings, and away from you, toss him into the boat. It's fun, if not orthodox, and will make your companions scramble.

Lead the bigger fish in close, and in lieu of the net, rod in left hand, slip your right hand back over the snout, moving from front to back, and close your fingers tightly just back of the gills. You won't get "spiked" in this way in the case of fish with sharp dorsal fins, and it is a grip that should hold almost any fresh-water lake fish, even the mighty muskellunge.

Some anglers land their fish by closing the thumb and third finger over the eye-sockets of the bigger quarry. It seems to render the fish insensate. I still like to get a "half-nelson" just back of the gills; it is cleaner and makes a powerful hold. In the case of under-sized fish, wet your hands before unhooking and handle as gently as possible.

II. Tackle for the Bait-Caster

ROD

Steel or split bamboo makes the best bait-casting rod. The steel is not so whippy as the bamboo, and is not my preference, but it has staying qualities all its own, and when made of light-weight steel, well constructed, it will handle almost like split bamboo. It is especially good when taking heavy fish like big pike and musky.

Split bamboo is the all round bait-caster, however. For finest action in this rod when using light lures in open water, the 6 to 6½-foot rod is best. This length rod has a good action and will also handle flies nicely. If you employ heavier baits and the water is fairly obstructed with weeds and snags, a rod of 4½ to 5 feet is suitable. It has a slower action but will stand up better than a lighter and longer rod.

Do not get too short a rod unless your fishing is always in obstructed water and with heavy baits. A short rod has some advantage where the casting latitude is limited, but not enough to sacrifice an extra foot or so when that will give you a good casting rod.

Agate guides are preferable on the casting tackle, with mountings and ferrules of German silver. A one-piece rod is considered best for action, but it is unhandy if the angler lives some distance from his fishing water. The two-piece and three-piece rods are handier; they may not have quite the action of a one-piece but they are all any angler can ask for. With a short butt and long tip construction they work very well.

If possible, have an extra rod and an extra reel on hand in case you break one. This is especially desirable if you are fishing far from towns.

The split-bamboo rod is of delicate construction and needs care. Dry rot must be guarded against and the rod varnished from time to time. Apply a light coat of varnish, in a warm, dry room. Go over the silk winding at times. For preserving, apply best-grain alcohol shellac, being careful not to get it on the rod itself. When storing the rod, wipe it dry each time and straighten the tip. Hang it by the tip to straighten it and prolong its life.

When in the field, never lay your rod in a spot where it is apt to get stepped on, such as on the ground, the bottom of the boat, or floor of the camp. If possible, stand or hang it upright.

CASTING REEL

The reel on a bait-casting outfit is the most important part, and the line next important. So if you must save on some part of your casting outfit, do it on the rod. A casting reel gets a great deal of use on some days, and if it is not well built, it is going to give trouble.

A fair reel can be purchased for about two dollars, and for five to ten dollars you can obtain a beauty. If selected with care and obtained from a reliable dealer, a medium-priced reel will see you through many summers of casting. Supplement your good reel with a cheaper one. Seldom do the simple, inexpensive reels get out of order, and when they do you can usually fix them yourself. However, once you get to appreciate the value of a reel, you will want a good one; and when you obtain the best reel possible, you will take care of it.

A good reel has pinions of the highest grade tool steel, gear journals tempered, ground, lapped, and highly polished, with

driver gear cut from solid bars of best brass. The jewels are agate, garnet, or sapphire. Such "cap" jewelings reduces friction. Hole jewels are set in the pivot bushings of the high-priced reels and take the wear along the length of the pivot. The best reels are made of German silver, set with aluminum spools. Like a good watch, a good reel is made of the finest materials and is of the finest mechanical adjustment. It is not to be taken apart by just anyone; the work on it must be done by an expert.

The modern reel is quadruple-multiplying, level-winding, anti-backlash, with a line capacity of 80 to 100 yards. If the line does not fill the reel, a cork arbor can be used, or an old casting line attached to the regular one as a filler. Cork arbors are best.

Care is highly essential to the well-being of the reel. Keep it free of dirt and sand especially, for that grinds and ruins it. If your reel is a "take-down," cleaning is simple.

Oil your reel from time to time, but oil wisely, not too well. Put only one drop of oil on each end bearing after using, and at times a drop in the crank. Usually one drop in the bearings is enough. Avoid too much oil, for it slows up the action and does the reel no good in other respects. When the reel gets much use, oil it frequently, and be sure at all times that you keep it free from sand and grit.

When the reel is apart, wash it in benzine. At the same time clean pivot and gear holes with a cloth. At this time the gears should be greased lightly with vaseline.

If possible, keep your reel in a chamois or leather bag. A cardboard box is all right; any container is better than leaving it exposed.

LINES

For bait-casting, a waterproof black silk line is one of the best. To cast easily, it should be smooth-finished. A hard-

braided line, 16 to 18-pound test, is a favorite, and if it has a core running through the center so much the better. Fifty yards is enough line; if this does not fill the reel, use filler line or cork arbor. A reel almost completely filled with line takes in better, for the reel-covering circumference is larger.

Be careful not to kink a new line when putting it on the reel. Lay it out straight or in large loops on the floor or grass, and then carefully reel it on.

It is true that rod and reel are important in bait-casting, but so is the line. In fact, some anglers consider line more important than rod. A bait-casting line gets hard wear, for it goes out speedily over long periods of time and gets wet through. Then too, plugs are fairly heavy and snags are frequent. All this strains the line heavily at times.

Test your line for weak spots; break off the worn sections. When through fishing for the day, wind the line around trees to dry. Care is highly essential to the life of a line. Wash it in rainwater from time to time, and make sure it is dry before storing it away.

One of the newest lines is made of nylon. It is as tough as necessary and casts with ease.

TACKLE BOX

The bait-caster's tackle box need not be bulky. There are many good makes on the market; the kind which opens up into two or three sections and displays the complete equipment is excellent. Some of the best tackle boxes are expensive, but for about two dollars you can obtain a box to hold all the tackle and baits you need.

LURES

The lake angler will want a top-water, a semi-surface, and a deep-water bait. Some plugs are so constructed that they can



Upper Hemlock Rapids on Paint River, Mich., is fine for fly and bait fishing. Lower left Proficient anglers with a pretty catch of northernns. Lower right Taken on worms from "jungle" stream which is too rough for fly-fishing

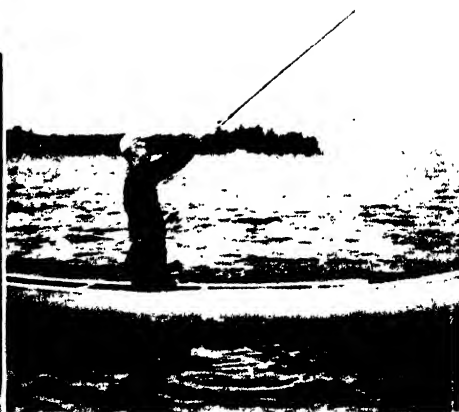


PLATE 14

This caster selects a likely spot to place his lure. *Lower left* When the
 ikes the water, shift the rod quickly to left hand and retrieve line.
Lower right The overhead cast is easiest and best on open water.

be used for both top-water and underwater bait. There are lures of every size and description. Get a few of the best-looking, and use them skilfully. There is no use in cluttering up the tackle box with all manner of baits. Every angler has his favorite which takes fish under most conditions; when it does not, he experiments with others. Of course, one bait is not always as good as another, but one standard plug when made and used correctly can be used for most of the lake angler's purposes.

At one time the spoon-hook with the feathers and treble hooks was the all-round lure. It is not so popular now as it used to be, but it is very good. There are popping baits, diving baits, wobblers, wigglers, spinners, jumpers, crawlers, and what not, but in the end they are all lures, and the angler himself will have to find out what will take fish.

Bass, pike, pickerel, and even musky will hit much the same lure, although each has its favorite. Colors play a big part in results. Top-water lures are good—particularly for bass—when the fish are feeding fairly close to the surface, as in the evening. Floating plugs should have a lot of "kick" in their construction and use, for this action gets the fish excited enough to strike.

Surface baits are at their best early and late in the season when the fish are in shallow water, and also morning and evening in midsummer. When the sky is overcast, a surface bait can be used successfully all day. No one color is best in a plug, but some are better than others. For instance, green and black spotted, red head with white body, green body with white head, and all white are effective.

Sometimes—but not always—a fish will strike because he thinks your lure is natural bait like a minnow, frog, or bug. This is a pretty good rule to follow in choosing a lure. If it

simulates closely the natural bait, then so much the better.

Fish will take live bait oftentimes when plugs have no attraction for them. You may find that a No. 3 June Bug Spinner with hook for minnow is a good lure to own. Hook your minnow through the back of the collar and run the hook around and farther back an inch or two, being careful not to mar the minnow any more than necessary. Mud-minnows for northern lakes are best. Pork-rind baits are put up in handy jars, and a fish will often strike a rind-baited hook when it will not touch an artificial lure.

12. How to Catch Trout

There is a fascination in fishing timbered areas that is not attained in meadow waters. Here are shadows and cool forest depths; the trees are somber and yet charming. Such spots appeal to the lone fisherman for they are private and what's more, they hold trout.

Timbered areas do not necessarily have to have brushy banks, but in most cases they do, and it is this undergrowth that really makes a trout stream—alder growth, especially. Most good, brushy trout streams of the North might well be called "Alder Creek." Vines tangle themselves, too, amongst the luxuriant undergrowth, and make fishing difficult. Along most streams there are well-beaten paths during a certain part of the year, but in midsummer, when the underbrush is at its height, paths are overgrown and hard to follow.

If the stream is not too deep, wading is the best means of attack. The water is cold, and the initial plunge brings many misgivings, but the angler can take it by degrees until he gets used to it. It is best to try each likely spot as he moves along. And there is no need for haste in trout fishing—or any other, for that matter. The more cautious the angler, the better his chances for trout. In streams that are deep and shaded by overhanging alders, it is well to let the line ride ahead and search out the holes carefully. As the angler wades along, he stirs up the waters. Trout are quick to take advantage of water that is being roiled, provided they are not scared at the same time. There is the chance of feed floating down in the dirt, and if your bait is among it so much the better.

Wading is difficult in these streams, for oftentimes the angler comes to a spot that is too deep. It can be fished well up to that spot, however, and finished along the bank. There is no sense in rushing along a trout stream; the experienced angler never fishes in this way. It is far better to fish part of the stream carefully and thoroughly than to rush from one spot to another, trying to beat the other fellow.

Search out the riffles. A trout likes fast water, and at certain times of day it stays near the riffles, waiting for feed to come tumbling down with the current. During a rainstorm the riffles are especially good, even though shallow, for your trout is on the move then and gets out into the fast part of the stream for feed. A well-placed fly will take fish in these spots at almost any time of day if the fishing is done upstream so that the fly drifts down to the trout's line of vision as it lies headed to the current. The riffles are not to be sought, however, when the sun is warm, for then the trout leave these shallow waters and lie in the deep holes where they can hide in the mucky bottom.

The best trout streams are clear and cold, deep and dark, and spring-fed. Search out the small spring-fed brooks, too, that are sometimes not 3 feet across. Trout stay in them the year round if they are deep and cold enough. When the waters become too warm in some of these small streams, the trout will move to the rivers that are deeper and colder. Look for them in the spring holes during the hot months, or in the spots where springs trickle into the river. Small streams, deep and shaded, where the trout stay the year round, are usually in timbered areas. The waters do not dry up so readily where they flow through heavy timber. Such streams are not so readily accessible as the more open stretches, and the competition is not so keen here.

In trout fishing, wading is to be recommended, for getting right into the water makes you one with it. Your feet find out the markings on the bottom of the stream and you get to know every foot of it. Your offerings can best be presented in this way also.

If the stream is small and brushy, fly-fishing is difficult, although it can be done almost anywhere. In such places cleansed worms or wet flies are the best lures, and with a telescope rod the angler is at a distinct advantage. The rod does not have to be very long in these small, brushy, overgrown streams. When it is telescoped to about 4 or 5 feet, it is easy to handle and the angler can slip along quietly and carefully, placing his bait where he wants it. Undoubtedly the best spots here are the deep, shaded holes with mud or gravel bottom, stirred by a distinct current. You may have to use a sinker to get down to the bottom. And the bottom is the place to angle; let your lure touch it and bump along naturally. This is easily done when the current is not too strong and the waters are normal, but in the flood waters of spring you will have to do some experimenting with the right weight to keep your bait in the desirable spots.

Every so often you will come to log jams, and here, if you are patient, you can find spots that merit some careful investigation. This is where your big fellows hide. They may not venture out much during the daytime, but when they do feed, be at the spots hard of access, such as a log jam, where it pays to do some intensive angling.

The brushy and overgrown holes are the best spots for luring trout from their watery habitat. High pine and hemlock woods are especially desirable, for their roots project out into the stream and form natural pockets for the retiring trout. For the most part, fish keep along the banks; when they find good holes

like those made by towering pines and hemlocks deep in the thicket, they stay there, and when one big fellow leaves, another takes his place.

There are certain parts of the stream where the angler can always be sure of a trout, and the expert will go to each of these places on every visit. Perhaps he has taken one or two in the rapids. Dusk is falling, and he wants a few more. "Believe I'll try that big pool down below the rapids. If I steal in from the bank down below and drop my fly over that big black rock, perhaps I can hook the one I missed the last time I was here," he muses, as he looks the stream over. And on the spur of the moment he heads for the fisherman's path on the bank and hastens down to Big Rock Pool, where he knows there is a trout in waiting. Certain stream markings to him have a definite meaning.

Roots and logs projecting into the stream are good, and so are pockets around large rocks. Rocks especially provide hiding places for trout; they make natural barriers along the stream bed and give the fish stopping places from which to dart out and fall on anything palatable coming downstream. Like most barriers, rocks offer snags, but they are not so bothersome as logs and drift. Rocks abound in water that has a gravelly bottom, and such water has an appeal to wary trout; it is clear and cold and pure.

Some anglers favor the rivers; others have a preference for small, meandering streams. One of my favorites is a brushy, alder-lined, "wilderness" stream where the waters run into deep spring holes. Such holes are ideal; they make good camping sites and attractive spots for lazy summer fishing. They are a retreat for the angler when the weather is too hot for much tramping through the brush. Mayhap there are chub and suckers in these same holes, but that is to be expected in trout

waters. When the Conservation Department considers planting more fry in a trout stream, it wants to know if there are suckers in the stream, for these scavengers seem to keep the place clean.

My partner and I ran by chance into one of these big holes on a certain northern stream, just at the bottom of the rapids. We caught nothing much in these small rapids, beautiful as they were, but it did not take us long to recognize the possibilities of this big spring hole where the water ran so deep and cold. The bank was well stamped down, for others had been here before us. One old fisherman was there when we arrived and he seemed to know his angling. We saw him take a shimmering brook trout, neatly and cleanly. We joined him and tossed our baited hooks into this pool that reflected the heavens above. Suddenly the trout were striking, and three fishermen raised as many fish, one after the other. But my fish and my partner's were suckers. We had not sunk our bait deep enough.

"Put on another sinker," advised our friend. We did, and the rest was easy. Suckers do not go down as deep as the trout in these cold pools; if you fish the bottom, you get the trout. And if you can dig your bait right fresh from the stream bank, so much the better.

HOW TO CATCH TROUT IN SPRING

When it comes to fishing, I class the speckled trout as the emperor of all game fish, and angling for him as the most fascinating sport for the fisherman. It is great fun just to be on the stream. Taking fish is not always my prime motive when I set out, I must confess. But once I do reach the stream, it is my object to catch as many trout as I can within reasonable limits.

The first spring outing means a lot to the trout angler, after

being shut indoors all winter. With the coming of spring he is eager to get to his favorite trout pools. And when he does get on the stream, he never knows what he may encounter in the way of angling and angling weather. Spring conditions are changeable. I have caught trout in howling snowstorms, in cold pelting rains with the streams far above normal, and also in lovely warm weather. The intrepid trout angler who takes his fishing as he finds it must use a little intelligence in the manner of his angling. If he be a fly-purist he will stick to flies, but I have found that trout are best taken in early spring on bait, and bait is what I use then.

The best rod for all trout angling is the bamboo, especially if well constructed. However, the bait angler is wise in choosing a steel rod when the streams are very high and rushing, for it can better withstand the steady strain exerted by the waters. A click reel, a black enameled line, and a snelled hook or spinner and hook usually complete the outfit. Early trout fishing takes simple and rather sturdy tackle where I have angled. A leader is not essential unless the water is very clear; usually the stream is swollen and turgid and full of snags. In those conditions a snelled hook is better than thin gut, for the reason that you will continually run into snags, and the strain on your tackle will result more from such conditions than from the actually hooking and playing of fish.

Do not let me discourage you, but in this type of trout fishing the angler will get many snags, for he will have to fish close to the bottom for the best results. That is where the fish are feeding. It took me a long time to find that out, but I have taken advantage of the fact, and always use enough heavy shot to bring my bait close to the bottom. There it bumps along with the current in a natural way and gets down to where I believe the trout are lying. I have never yet found out just how

suspicious trout are about a bit of shot, but I suspect that the less they see it, the better. I therefore fasten it about 6 inches above the hook so that, if possible, the shot will bump along the bottom and the hook will be free to float just a bit above it.

Snags are to be avoided like the very plague. There is nothing more exasperating to me than to hook into a snag just where I know there are some good trout in hiding. When baiting your hook, thread the worm on naturally, in and out. Do not run the hook through it, or bunch the worms all on the end, and be sure at all times to cover the tip of the hook. I have found that trout are very suspicious of a hook that shows. They may strike your bait fiercely at first, but when they have not impaled themselves and find that there is a "hook in it," so to speak, you might just as well retrieve your bait. There is a chance that you may take your trout even then, but that chance is small.

Bait your hook evenly, naturally, and let it ride along with the current as any worm might do. I do not say that a bunch of worms will not lure trout; in fact, I know of some big ones being taken on just that kind of bait. But for the most part, it is better to put on plenty of worms, and to put them on so that they look natural and have plenty of wriggle. As soon as your bait gets dead-looking, take it off and change it. You can usually tell when the hook is showing, for the trout strike and then stop suddenly. When this happens, cover your hook. That is one of the secrets of worm fishing for trout, if there is any.

It is important that worms be kept in good condition. Put them in a large wooden bucket in which you have placed damp grass. Place the bucket in the shade, and if at any time the bait takes on an odor, pick out those which are bad and throw them away. Keep your bait can in a handy place, for you will use it frequently if the trout are striking. One of the best containers is the tin can that fits against the belt and is

readily accessible at all times. Keep this covered, that is, in the shade if you can do so, and cover the bait with damp grass here too. Some anglers dig their worms right at the stream-side, and get some of the best bait in this way, for it is strictly fresh. Dew-worms are in wide use, and pretty good at all times, but the small, lively, fresh worms dug at the stream will be the most natural-looking of any you can get.

Fish the deep holes with a good current in them, for best results. Wade out and get close to your subject, but of course keep yourself hidden. Put out plenty of line and place your bait far enough ahead of you so that you will not be seen. Move slowly along, trying out every likely-looking spot. To get to know your stream, you need to go wading through it. Stirring up the water does not make so much difference; in fact, it sometimes works to your advantage, especially in a clear stream. The trout see the dirt moving, and go out looking for the feed which it will bring. If your bait is going down with that wash, so much the better. Do not make any noise, and keep yourself in the background. It is surprising how much line you can get out in this way. You can stand well back in some fairly open spot and let your line go tumbling far down, past this spot and that. You must ever be on the alert for the strike; using a slender bamboo rod, you can quickly feel it up the tackle. Make sure the strike is a good one, and when your trout seems to "have it," strike back quickly, but not too sharply.

If you have hooked him, all well and good. If not, he may strike again and he may not. He may have felt the hook, or your retrieve, if a sharp one, may have scared him away. Try him again shortly with the same bait, and if he does not take it, retrieve and rebait. Now watch out! The bait is fresh, and you are prepared. Down, down, down—and with it a quickening of your pulse—and then to the end of the pool. There is a

sharp rush and a tug this time; set the hooks quickly and your fish is on.

Reeling for trout is one of the best methods, and once you get a trout at the end of a long length of line there is great sport in landing him. He will dart this way and that. Keep a taut line on him and keep him under water, if you possibly can. After landing, by netting him head-on, do not give up that pool; try it again in the same way. The first fish taken from a pool is usually the largest, but there may be others, and it is well to exhaust the possibilities of each hole before moving on.

Do not, however, waste too much time in the deep holes which look stagnant and dirty. Probably the water is warm, and unless the pool is fed by some nearby spring, the fish will not be there, for trout shun stagnant water. But if there is a deep hole at the end of some clear, cold rapids, backed up by logs and brush, and shaded to boot, try it by all means. The big fellows live in these inaccessible log jams, and by letting out a length of line carefully, watching always that you do not snag and scare the fish away in unfastening, you may get one of those delightful surprises that every angler is looking for: the tremendous strike of the granddaddy of them all.

If the stream is small and brushy, I would recommend the use of the telescope, for this rod can be shortened conveniently at any time. You can poke it here and there, shortening or lengthening as the spot requires, and land your fish much more easily than with a longer rod. One stream I have in mind for this sort of angling is the Duck, not far from Land O' Lakes, Wisconsin. It is brushy in most spots, and it is here that big trout are taken.

Spring fishing is not all worm fishing, of course. Such flies as the Black Gnats and Dark Nymphs and certain bucktails have proved to be real killers. The patterns need not be many

and clever; it is rather the way in which they are handled which gets the fish. There is a great diversity of opinion on fly patterns for any sort of trout angling, and especially spring fishing. Try a few old reliables and find just what the feeding habits of the trout are and what the stream is like. Trout can be taken on artificial flies at any time except perhaps when a flood has filled the stream with mud. If the angler gets to know his stream and the habits of his quarry, he can get good results with flies.

No matter what the bait used, however, early spring fishing has a lure all its own. Spring is in the air, and there is a whole new season to look forward to. Taking trout is not my only motive for getting out on the stream; here is my chance to get the feel of the outdoors again. Whether I come home with a full creel or a partially filled creel is of little moment. When fishing for trout I take my time and enjoy myself. That is the way to get good trouting, and that is the way of the complete angler: a full heart first, and a full creel afterward.

MIDSUMMER TROUT FISHING

Most trout fishermen will agree that spring-fed pools are one of the best places from which to take trout during the hot months. But there are other streams without such cool spots, or with only a few, where the angler prefers to fish the stream in its entirety with fly-fishing tackle. Trout like deep, spring-fed pools in the hot season. Fish such spots if you can, but do not neglect other parts of the stream which are also productive.

Midsummer fishing is trying at times, for the waters then are low and clear, and the trout very shy. They lie quietly, heads upstream, finning the water, and at the least sound or commotion dart into their hiding places and come out only when all is peaceful again. The methods that you employ on

one stream may differ entirely from those used on another not five miles away. No doubt it is the conditions of the stream that make trout so shy and hard to take in midsummer. The water is usually low and shadows show up sharply, particularly when the sun is high. When the sun is under cloud, things are not so bad.

What is the best way to catch these midsummer trout? The wading angler stands a better chance than the one who fishes from the bank, especially if it gives off vibrations. But sometimes the bank approach is better; you yourself must decide. Whatever the approach, it must be a quiet and guarded one. You must merge with the surroundings and let your fly fall naturally on the water.

Fishing upstream and from the stream itself is usually the best manner of going after these wary trout. The wading fisherman can cast over the backs of the fish; and when he does get a strike, he is in the best position to set the hooks. That is, when the trout strikes, the barb comes into hooking position quickly and naturally. The wading caster does not disturb the trout, and he has a much freer hand with his backcast. Wading against the current has long been recognized as the best manner of approach, and when the angler offers the right fly in the right manner he stands a chance of overcoming the midsummer handicap.

There are times when casting upstream is out of the question, especially on narrow streams with quite a current. Try across-stream, or up and across. There is no hard and set rule. In such cases, each angler must work out his own methods.

Good tackle is needed. The nature of the stream and the taste of the angler determines what is best for any particular fisherman. Personally, I prefer a fly rod of 8½ feet, 5½ to 6 ounces split bamboo for most midsummer angling.

Choice of line is also a matter of taste, and depends upon the condition of the stream. One of the best for midsummer angling is the double-taper, made of pure silk, braided and water-proofed, amber in color. The taper in the line at both ends aids the angler in placing his fly correctly, with the lightest and most accurate touch. Line should go about 35 yards in length; size HCH is ideal for most streams. If the line has a very smooth finish and floats and picks up off the water easily, you have one good enough for most trout fishing. By all means use a very fine tapered leader too, about 6 to 9 feet; and when you shoot out your fly, do it with a light touch. An expert with a poor fly can do much better than a novice with the "right" fly poorly cast. Do your very best.

Midsummer trout are generally hungry, but they will not take just anything. It is a safe rule, however, to observe the conditions of the stream and to give the trout the flies on which they are feeding. Both form and color of fly is important, but no matter what you use, you must know the stream and the habits of your quarry.

There are certain places at which trout will always be found, and when these spots are discovered the wise angler will play them carefully at every opportunity. Most fishermen know such places. Meadow waters shaded by high grasses where the banks are undercut, are usually good. Here an angler can spend hour after hour without traveling over a hundred yards in either direction, and when all is well, fill his creel from a short run of water. These deep shaded holes allow the angler the right approach and are recognized by the trout as their rightful habitat.

But when the sun is high and hot and the waters warm—when everything is wrong from the angler's viewpoint—the trout fisherman asks himself the same old questions: What fly?

How to place it? Where? Why are the trout not striking? They seem not to be there at all. Nothing seems to work. Perhaps you will have to wait until they feed, but who can tell when these wary midsummer trout do feed or what they prefer?

Feed they do, however, just when all seems hopeless. Here one will rise, there another. *Splash* goes a trout in that eddy, *plop* over near that litter of drift. And when you lay that fly right where that big splasher is rising and taking, almost any fly will do. Suddenly and savagely he strikes, and you have him! Things look decidedly brighter.

For the dry-fly purist there is only one way of angling for these trout in midsummer or at any other time—the dry-fly way, of course. In summer the dry-fly fisherman comes into his own, and if he knows his patterns, his tackle, the stream, and the little tricks that come with long practice, he should make a killing when the trout begin to rise. And the expert dry-fly man can make them rise. He has the feeling that his technique is right, and he works the stream tirelessly, with the touch of an artist.

Technique apart, however, here is a list of dry-fly patterns that more than one dry-fly angler has found effective tied on No. 12 hooks: Black Ant, Quill Gordon, Mosquito, Beaver-kill, Royal Coachman, Reuben Wood, and Jungle Cock. No particular fly is always the best one; one day this fly will produce, and the next that. If a Wickham's Fancy, for example, has taken a good catch one day, that is no proof that the angler should use that fly exclusively for that stream and for all conditions. Anglers are prone to do this, however, and to get in a rut. Many fly-casters use only four or five flies and learn them perfectly. This is certainly a lot better than trying everything new that comes along and having too many flies. Sound advice

for the novice is to select a certain well-favored few, and try them well.

Morning and evening angling for midsummer trout is always good, for then the fish are on the move, looking for feed. Watch especially for the hatch of flies and try to match the fly being taken. On some streams the caddis is a killing fly, especially for the brown trout in the evening; but on others it is of little or no value. Study the insects preferred by your brand of trout. Sometimes you can take browns, rainbows, and speckles on the same pattern, but not as a rule.

There are times when bait is effective in midsummer angling; if this subject is abomination to the fly-caster, let him skip a few paragraphs. By bait here I mean the lively grasshopper, not the red-legged locust. Hungry trout will take this bait under most conditions when the waters are low and clear. Use a fly rod and long leader, just as in fly-fishing, and impale your grasshopper on a No. 4 or 5 hook, running the hook forward through the body, point and barb in the head, and cast as you would a fly. Using live bait like this is not easy. On the contrary, it is harder to hook a trout with this live bait than with artificial flies, for the reason that the point of the hook must be imbedded in the hard head of the grasshopper and some fish are only too adept at cleaning the barb without hooking themselves.

The angler must strike almost at once when the trout hits the bait. Set the rod quickly with a smart depressing of the butt. You may miss the first three or four strikes, but practice makes perfect, and if the fish are hungry and striking hard you may hook a number of them.

The open stream is best for angling with grasshopper bait, for it allows room to cast. For best results the angler should steal up to the bank quietly, and with hook carefully baited, cast it

to the opposite bank. Do not let it hit the water at first, but try for the grass. If successful, let the bait hang a moment and then flip it into the pool. There is likely to be an explosion as a big trout hits your lure; set the hooks quickly and strike hard. The meadows are best for this angling, but "grasshoppering" can also be used to effect in brushy streams. A 6-foot rod is handiest here, for you may have to work your way through tangles that are trying to the soul. Be careful not to get the line caught in the brush as you toss it to the other shore.

Sometimes it is almost impossible to reach the right spot. Patience and dexterity works wonders here. If you cannot cast your bait into the place, you can float it. Pick a broad leaf, lay the bait on that, and as the current floats it down to the spot you are looking for, flip it off gently. This trick has netted anglers many a good fish—not only trout but bass as well.

All in all, trout fishing in midsummer is none too simple. The best time for angling at this season is when the sky is cloudy or overcast and in the cool of morning and evening. Some anglers can get out only during the evening hours, but they can make up for lost time by learning the stream and handing the trout the pattern which pleases them. Midsummer is the best season for the dry-fly angler. Good waters are all he needs. With the little tricks at his command, he can play the game for all it is worth and land his fish.

13. How to Catch Other Game Fish— Pickerel, Musky, Pan-Fish and Black Bass

BAIT-CASTING IS BEST FOR PICKEREL

There are many ways to catch pickerel, and one of the best is by bait-casting. "He is not a gamy fish," some anglers say of the grass pike. "He has not the fighting qualities of the black bass and musky." True enough, to a certain extent, but the pickerel, or *esox niger*, is a mighty good striker. He has a hard time refraining from hitting anything shiny in the way of a lure, and for this reason he has endeared himself to thousands of the angling fraternity, especially novices. The angler can depend upon this fish for the meat supply if fairly plentiful in nearby waters. What is more, the grass pike is a good fighter, especially when the weather is cold. He grows to good size and is a nice fish to angle for.

Rain or shine, heat or cold, your pickerel is an affable striker and makes angling interesting. When many other fish are "off their feed" the pickerel will be there, looking for something to eat. I have found that this fish, like so many others, wants rough weather for his best maneuvers, and this is the time to go for him.

There are many lures on the market for taking this fish, but I believe the old reliable fluted spoon, size 4¾ or 5, is as good as any and better than a lot. The kidney-shaped spoon of this size is very effective, reeled in slowly. Fish it with diligence through the weed bed. Add to it a bit of pork rind or perch tail and you have a killing bait.

BUT TROLLING WILL TAKE PICKEREL

This is one fish that takes well to trolling. The lure goes deep and slow, and the angler, moving the boat into likely places as he rows along, is apt to cover much more water in this method of fishing than he does in casting. Not that I recommend trolling where casting can be done. Trolling can become very monotonous at times, but so can casting when results are poor. It is well to vary the routine. Try both means if the fish are not in the right mood for striking.

That the pickerel likes rough, cold water is true, and there is a big thrill in angling for him when he is in fighting mood. And when the elements are raw and fierce, the angler is in good trim himself. He is free to meditate on the vagaries of the world. As the wind whips water into his face from the singing, taut line and the white caps break sharply across the bow of the boat, he really fishes for all he is worth.

Trolling is certainly a utilitarian method of taking fish, for the tackle is easy to get. One does not need a rod if the line is heavy enough. "Hand-lining" was done in the good old days. The fisherman used a long length of mason line to which was attached a No. 5 or 6 spoon and two heavy sinkers. He whirled this weight about his head until it developed a certain centrifugal force, and then let go, and took in the line hand over hand. When a fish was hooked, it was played back and forth until tired and then pulled into the boat. Such fishermen would row hither and yon to likely places and vary their procedure by using the same line for trolling.

The best rod for trolling is a short bait-casting rod. Let the line go out straight from the rod. Employ 18 to 20-pound test line or lighter with double swivels attached to the leader to keep the line running smoothly and to avoid twisting.

One may troll for bass as well, but trolling for pike and musky is using this method to best advantage. Keep your line out far enough back of the boat; and if more than one person is trolling, watch that your lines do not tangle. This is easier said than done. Keep lines far apart and on opposite sides of the boat. If they do get tangled and remain that way for some time, you stand a good chance of ruining them.

Trolling is not so sporting a method of taking fish as casting, but if your tackle is light enough for the fish you seek, it is sporting enough. I employ this means of fishing most when I am moving from place to place. I want to travel and fish at the same time, and keeping a length of line back of the boat is killing two birds with one stone. Snagging is very vexatious at times, however, especially if the lake is weedy. A trolling line is a handy thing to keep in the tackle box. It takes little room, and if you should forget your rod you can always use it instead.

HOW TO CATCH MUSKY

The fisherman who wants to take musky must go after his quarry with a determination to get him at any cost. Above all else he must be patient, for the musky is a moody fish and is not always ready to strike at whatever comes along. At some times of the year he refuses to strike at all. Hot weather is bad, but the cold months are even worse, so it is wise to angle for this fish in the moderate weather after June 15. Until then the musky does not stir around much, for the cold water slows him down and makes him comparatively inactive. But at 70 degrees of temperature your musky is up and about and looking for feed. Then is the time to be on hand with a musky lure, preferably of the type which makes a commotion in the water, such as the propeller-head type.

It is not necessary to have a large number of musky lures in the tackle box. The following is a pretty good assortment: 2 No. 5 fluted spoon hooks, feathered lures, 2 No. 3 June Bug Spinners with live minnow attachment, 1 Pfeuger Chum Spoon, 1 Pikeoreno, 1 Propeller-Head Lure.

A few plugs will be enough for this fish, and these should to a certain degree resemble the pike and pickerel, which are the chosen prey of the musky. It is well to remember that the musky does not always strike just for the sake of appeasing his hunger. On the contrary, this fish is a killer and will attack anything which he thinks is invading his domain. The idea then is to give him something which kicks up a fuss in the water and makes him mad, such as the propeller-head lure mentioned above.

There are any number of lures for this fish, and most of them will make him strike if correctly offered. Get one which is active, or one which you can present actively. If casting use a plug, and if trolling employ a No. 6 or 7 spoon.

For casting, a white bucktail makes a killing bait; many muskies have been taken with it. Some of the best colors in a plug are yellow-scale, plain yellow with red head, plain white with red head, or one plug all yellow and one all white.

Use tackle which is sturdy and in good condition. If you use bass and pike tackle, watch out. Play your fish to the last notch or you will come to grief. Don't try to "horse" your fish. Musky angling entails some rough going, with weeds and drift-littered holes the usual thing; poor tackle is entirely out of place and light tackle must be handled skilfully. A 5-foot, 7 or 8-ounce split bamboo is a good casting rod; a steel rod of reliable construction is even better, for it is sturdier. For line use 23-pound test, size F or stronger. Use a 20-pound if you wish, but make sure it is in good shape and the fish not given a chance to break it by careless handling.

Where to look for muskies? There are specified areas for this fish. Canada has many good musky waters, principally in the Lake of the Woods region. Northern Minnesota has muskies, and northern Wisconsin is famed for them. There are four chief places in North America where the biggest muskies abound, pretty much in this order: Lake of the Woods in Ontario and its adjacent waters, St. Lawrence River, Chautauqua Lake in New York, and French River, Ontario. These are not the only musky areas, but they are some of the best. In northern Wisconsin, the Chippewa and Flambeau Rivers are productive of many muskies, some of which weigh 50 pounds. There are many other rivers and lakes in this state which hold them too—the Flambeau and Turtle Flowages, for instance.

Some of the bigger muskies are hard to get almost anywhere, and if the angler decides to go after them he will have to seek the more out-of-the-way places and exercise much care and patience. But the chances are good for taking fish from 10 to 15 pounds in weight, for there are quite a few of this size.

Patience is certainly the watchword in the pursuit of this fish. Make up your mind in the first place that it is only the tiger-fish which you wish to hook, and from then on until you get one, concentrate on it alone. There is the possibility that while fishing for pike you will hook a musky, but it is the exception rather than the rule. Musky have certain waters which the experienced 'lunge angler will readily recognize. "Ideal musky hangout," one old guide remarked, describing a certain spot. And one could just see the weedy outlet of a dark lake, littered with logs, marked by a sandy bottom, lily pads, and sun-touched shallows. The water need not be deep; instead, it may be shallow and obstructed with brush and drift. When you get a strike in such a place, you must work fast. If at all possible, get the quarry out into the deeps of the open lake before he snags you.

Plan your battle. Head for the deepest place in the river or lake when your fish strikes. The musky is not named tiger-fish for nothing. On his initial run especially, he may make a savage lunge, and woe betide the angler who lets him get into the snags.

Some of the best musky waters are hard to reach, but you need not always travel far and wide to take a big musky. Some very good musky waters are at the highway's edge. Every once in a while you hear of a prize being taken in some lake right at the edge of town. Persistent fishing gets them. When you go where muskies are known to be, and when you really keep after this fish, using musky tactics all the time, you will hook one sooner or later, and perhaps even a large one.

Keep on your guard, and do not let yourself daydream in your musky angling. This is not the easiest advice to follow, for there are many distractions, such as the beauty of the lake, the evidence of wild animal life, the wind and rough water at times. But keep on guard nevertheless. Your strike may come on the first day, in the first hour of fishing, and then again it may come after two or three days of fruitless angling. Be on the alert when it does come so that you do not lose your chance. And when the musky follows your lure right to the boat, do not stop reeling. Keep your lure coming right up to and even around the boat if necessary, and the fish may be moved to strike at the last moment. This often happens.

Many musky anglers get "buck-fever," too. The sight of a following fish gives them the ague; they stop reeling, and the fish sinks out of sight.

If the musky angler employs a guide he is indeed fortunate, for a good guide knows the musky spots. He will take you to these known places time and again, to give you all the chances possible. To be sure, the old lake angler will find the places him-

self, but it may take some time. He can discover them by noting the waters and vegetation, by watching other anglers, and by pure accident.

But be persistent; that is the idea. Do not fish for northern pike when after muskies. This sidetracks you and gets your mind off the main issue. And do not give up until you get your fish; if you are unsuccessful at first, your luck may change suddenly and a big one may strike hard.

I know of some very lovely spots where this fish can be taken, deep in the virgin woods where man has left little mark. There are places, too, such as the various flowages which are anything but beauty spots, with dead trees and stumps, logs, roots, and drift litter. The angler cannot judge too much by the beauty of a place. Sometimes the musky lives in water that is anything but "sweet looking." But find out where the fish are striking, and stick to this water, nice looking or not. Patience will yield dividends; just make sure the water has that "musky" appearance.

And keep alert at all times. If you are casting for this fish, hold your rod well in hand so that at any time, if a fish strikes, you can quickly set the hooks. Just when to do that takes timing and judgment. Sometimes your quarry will strike hard at the outset, and then you can strike back at once; but this is not always easy.

A musky has a certain amount of curiosity and will sometimes follow a lure right up to the boat without striking it. What to do then? Retrieve your lure and toss it back over the same waters. This may be the cast that will anger him. Whatever happens, by all means do not stop reeling. Keep your lure coming along. Give it a jerk or "pop" for action. It may make your following fish strike; give him the right incentive to hit the bait hard.

Many anglers prefer to troll for muskies, for one reason or

another, and this form of fishing for the mighty *esox* is very desirable. One good lure to be used in this fishing is a silver-spooned bucktail, size 5. Larger lures than this can be used in trolling, for it matters little if the lure is unwieldy. Long hand lines are used sometimes by the old-timers, but modern trolling calls for a stiff steel rod and a line of some 23 or 24-pound test. A rod of 4½ feet is usual, but some trollers like them longer, say 5 to 6 feet. A longer rod gives the angler a scrappier battle in some respects, but it is likely to give him trouble, too. Get a rod that will stand a fight, whether short or long, and let your other items of musky tackle be on the same order. I have found the 5-foot to be the all-round musky rod, and I like it to be quite flexible, to enable the musky to fight hard. The reel may be a No. 4 quadruple, casting, level-winding, or a size larger.

Get your leader of sturdy material, copper wire, if possible, 8 to 10 inches in length. One of the greatest hazards in trolling is line twisting, and this can be largely eliminated by using two swivels at each end of the leader, to allow your lure to turn easily. Troll with a short line, and do not let over 50 feet out at any one time. However, have enough line in reserve when you are trolling and casting, for your fish may make some spectacular runs, and if you do not have enough line to play him properly it may mean a lost fish. It does not pay to "horse" this particular fish if he be large and savage. Some of his dashes are long and fast and take him into spots where only strong tackle and good fishing will bring him to boat.

Trolling lures should be moved at a fairly slow speed, and if you have a motor which can be idled down to slow speed, so much the better. If you are paddling or rowing, of course, this feature takes care of itself, and you stand a chance of getting muskies provided you have the rod well under control.

Many anglers prefer live baits, and of these the sucker of 8 to

10 inches or a large green meadow frog is best. Suckers are especially effective and can be readily obtained at the resort towns, or they can be caught if the angler has the time and patience. Keep them fresh in a minnow bucket, in the shade.

Attach your sucker to a 6/0 single hook, or a trailer hook size 4/0. If the latter is used, the tail of the sucker should be allowed to swing free, to give it movement and the appearance of life. Let me tell you how some of the natives fish for musky with this sort of bait. They troll, for the most part, with the sucker down deep, a heavy line tied to a cedar board. When the musky strikes, they throw the board into the water (it will not sink) and give the musky free rein from there on. The musky will toy with this fish so long and then, taking it to his hole along the shore, will kill it and swallow it. This is where the fun comes in.

When your musky starts swimming around with the sucker in his gullet, row over and set the hooks, and from there on play him as you will. We came upon one fisherman deep in the Wisconsin timber and lake area who had lured one like this, but had not allowed the musky enough time to really swallow the bait. As the angler got near shore he jumped in and tried to drag his quarry up after him. But his line went slack. There was one loud resounding splash of a giant musky tail on those blue Wisconsin waters, and the fish was gone.

Fish the shallows and weed beds, and be sure to try near the big rocks and logs which are the favorite hiding places for this tiger-fish. The shallows are ideal hideouts in spring and fall, and any likely spot deserves a cast or two, or a passing-by if you are trolling. One would think that a fish the size of some of these *esox* would seek the deepest holes, but this is not usually the case. The musky likes to lie in the shallows and lunge out for the fish that swim here or for the meadow frogs that inhabit such spots.

Waters weedy and covered with yellow lilies and pads are ideal; murky and dark, they appeal to the big tiger-fish which goes there to take things easy until something comes along, like a fluted spoon of good size or a white-tailed bucktail lure, which wakes him up to energy and anger. When that happens your musky fisher is in for some sport. A tussle with a big specimen is worth something. If you hit a spot where it abounds and is in fighting mood time and again, so much the better. Such "musky moments" are not readily forgotten, for this fish is a real fighter that will give you a battle to remember.

HOW TO CATCH PAN-FISH

There are very few fishermen who, at one time or another, have not taken pan-fish, whether they wanted to or not. In many cases such fish were a side issue; for instance, you took a few blue-gill when you were angling for pike or bass. Perhaps you released them shortly afterward, with some pithy remark about hooking quarry like this when you were after larger fish. But the truth of the matter is that the taking of little fish can be made a sport of its own provided the angler employs very light tackle and goes about his fishing in the right spirit. There is food value in the pan-fish, and therein lies their charm for many an angler who wishes to keep the camp supplied with fish, but above all there is great sport to be had from catching the blue-gill, sunfish, croppie, rock bass, sand bass, and such fish. Get the right tackle and approach your fishing with the spirit of light-hearted youth.

These are definitely game fish. I have had some strikes from them that bore all the earmarks of a fighting bass, and not until I got them within seeing distance did I quite realize what I had taken.

One of the best of these fish is the blue-gill, sunfish, or bream, a handsome and gamy specimen. It is a real fighter, and the very fact that it will strike at bait big enough for pike and bass proves it. This fish is widely distributed, and taking it has provided sport for anglers all over the United States. The blue-gill grows to a length of 12 or 15 inches in favorable environment, and up to about a pound or more in weight. In general color it is a rich, greenish olive on the back, turning to creamy white on the belly. Some of them, especially the smaller ones, are marked with broad greenish bars, three or four in number. One of the most distinguishing marks is the point of the gill-cover, which is a deep, velvety black.

Other pan-fish likewise have their marks of beauty and distinction. The sand and rock bass, for instance, are colored in rich tones to match their environment. It is remarkable how these fish can take on the hues which blend them with their surroundings. I recall vividly how one side of a sand bass had changed pretty much to the color of the pickerel with which I had strung him alongside the boat before killing them. And I recall even more vividly how that 9-inch sand bass struck my minnow bait—a good-sized one, at that—hooked to a light fly rod. There was real fun in landing him, and not until I had tossed him into the boat did I realize that this trophy was a mere 9 inches in length. He gave all the indications of being at least 12.

Of course, the tackle is important in this sport, and whether you employ the bait-casting or the fly rod, it should be split bamboo, not steel. There is no substitute for the split bamboo, for it should be the lightest one obtainable. In the bait-caster I like one 6½ feet in length and weighing 3½ ounces. Get one lighter if you wish, and have all the more fun for staying on the light side. The tackle catalogs will supply you with the right

article, without a doubt, or your local tackle dealer may have such a rod right in stock.

If you are a devotee of the fly rod, well and good, but the rod must be light. This, too, is great sport, as any fly-rod pan-fisherman will tell you. Four ounces is a good weight, and the two-piece construction is best. Your reel should weigh just a trifle more than the rod and be of the simple click construction, not the automatic. Supplement rod and reel with the lightest line obtainable.

Now comes the selection of the leader, and this is important. With the short casting rod a tapered gut leader 4 feet in length is most desirable and will result in more strikes. The best way to attach it to the line is by splicing, overlapping the two ends and winding them tightly together, drawing the end of the silk beneath the coils. This is much better than a knot construction, for it will allow the line and leader to flow through the guides naturally.

It must be remembered that pan-fish are game-fish, and must be taken by game-fish methods. The angler can get a fair number of them even with clumsy tackle, but with light tackle—and that especially applies to the leader—more and harder strikes can be obtained. Carry a good supply of leaders at all times. In fly-rod fishing the best length is from 8 to 15 inches, and it is best to have them in different colors. Pan-fish are quick to detect any unwieldiness in tackle, particularly in the leader, in which artificiality is so quickly seen. The best length for the fly rod is anywhere from 8 to 9½ feet.

It must be remembered that while trying for pan-fish, the angler may have a strike from a small or large-mouth or other kind of bass. He is taking a chance in using light tackle, but this is where the sport comes in. A 4 or 5-pound bass *can* be taken on a 2½-ounce rod, and the fish may smash it too. But hooking

such fish is to be taken into consideration at all times, and if it should happen, the angler must use every means within his power to keep his tackle intact.

The hook must be small for pan-fish, for these fish have small mouths, and also have a habit of taking their time to strike the bait. A No. 10 or 12 hook is about right for most pan-fish. Attach a single split shot to the shank of the hook, not the gut, where it will fray. This shot is important, for it carries the bait down quickly.

Like all others, the pan-fish strike at any hour of the day, but the best time for taking them is during twilight and dusk, when they do most of their feeding. The best spot to try for blue-gill is in and around lily pads, but if snagging makes this too difficult, try the open water just outside the bed. You may strike a school there as well. A weed bed offers the blue-gill shelter to some extent from the larger fish that feed upon it, and at the same time provides feed in the form of aquatic insects and minnows, plant life, and the like. As for rock bass, you will, of course, find them in and around rock beds for the most part, or in the gravelly runs in streams if you are fishing in that sort of water. In running water this little fish is a demon for punishment and will put up quite a battle. The sand bass is found along the sandy bars not far from shore. This fish is also a good fighter.

As to bait, some anglers stick to worms in taking this fish, supplemented at times with grasshoppers. This is legitimate bait, but it certainly is not as sporting as taking them on artificials. The appetite of these little fish, and particularly the blue-gill, seems insatiable, and it is not necessary to resort to live bait. I have found that artificial flies or bugs, fished on a fly rod, will give me all the pan-fish I want, everything else being equal.

Just what patterns to use depends upon what you have, for

this fish is not finicky. Some of the best patterns are the black gnat, dicky, alder, and other dark types. Many anglers prefer to use the lighter types of fly during evening hours, but this is not always best. Try the darker ones, and drop the lure convincingly, lightly, keeping a taut line and the tip of the rod elevated, always ready to strike quickly. Of all types, the pan-fish are quickest to reject anything mouthed that does not suit them. It is not so much a question of the pattern of your fly as the way it is handled.

In most waters pan-fish will be found in schools. Be patient until you find where they are hiding out; once you run into a school of them, the fun will begin.

I have said nothing as yet about the perch. He belongs in the pan-fish class and is as game a fighter as any of them. He will follow your lure right up out of the deeps, striking at it vigorously several times if he does not get it at first. Like the croppie, blue-gill, and sunfish, he may be found more often than not in rather close proximity to weed beds along the shore, about where you would be looking for pike and bass. When the bigger fish are not "taking," this species can usually be depended upon. Find out first where they are hiding, and then if you have the right tackle, the rest is easy. I like the fly rod for this angling, and prefer wet flies on No. 8 hooks—small, to match the rest of the tackle.

Keep your outfit light and you will have a lot of sheer fun in angling for pan-fish. Forget, for a while, the pursuit of the musky, the big bass, the deep-sea lake trout. There is a real thrill in the smaller pan-fish if you go after them with light tackle.

HOW TO CATCH BLACK BASS

There are many ways to take black bass, but the most sporting method of them all is with bait-caster and fly rod. They

can be taken with cane pole and worms, and if you are looking for "meat" alone in your angling, this method is effective. But there are legions of black-bass anglers who like the sport alone, and for them the lightweight, fly-fishing or bait-casting methods are the only ones.

THE TACKLE

How to select your tackle? If you are a novice, it is well to seek the advice of experienced anglers; they will be glad to tell you just what they are using with the best results. If you own a trout fly rod and a light bait-casting outfit, this is tackle enough. You need nothing special, beyond that, for bass is the average gamy lake quarry, and many manufacturers design their bait-casting tackle with this fish in mind. Pike, pickerel, and bass all take about the same weight tackle.

My bass rod (and I use it for almost any of the lake fish mentioned above) is a 6-ounce, 5½-foot, split bamboo, with cork handle. It casts nicely, and is sturdy enough to withstand the snags which the bass angler runs into so frequently. Late in summer I used it with good results for almost a week on a bass lake, from which spot I transferred one bright September day to a pike and musky lake and took several good-sized pike without much trouble. Don't strain your rod. If you play your fish right to the last, light tackle will stand you in good stead.

Do not let me give you the impression that such a light rod is good musky tackle; it is really a bit too light for that. But you can take musky on light tackle. On a 6-ounce rod, 18-pound test line I landed one that weighed a neat 39½ pounds on the scales. As a rule, however, keep a sturdier rod and tackle on hand for musky work.

But your bass tackle should be both light and sturdy. Prac-



PLATE 15

Upper A string of musky and pike from Fisher Lake, Wis. The anglers needed sturdy tackle for these battlers. *Lower left* Tire your fish before you try to land it or you might lose it. *Lower right* A tiger-striped musky taken from Eagle Waters, Wis.

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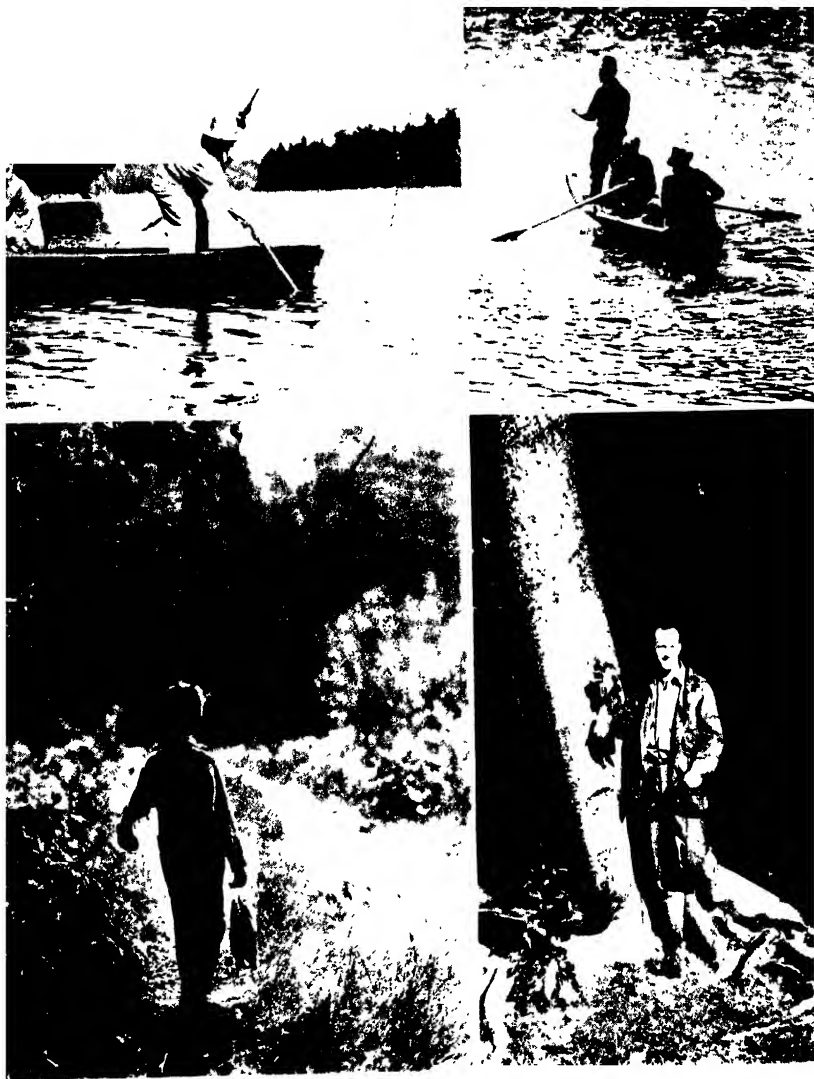


PLATE 16

Upper left If you learn the best spots to fish, you'll get action. Upper right
are clever fish and require expert tackle wisely used. Lower left A string
perch and rock bass taken with worms and a cut pole. Lower right Small-
mouth black bass provide excellent sport.

tice with it so that you can put your plug right in the "center of the ring," as it were, for accuracy in placing your lure rates high in black-bass angling. It is essential, in fact. If you are haphazard in your casts, you will run into all sorts of snags, and what is most important of all, you will not be able to fool the bass. They are a wary and clever fish, and cannot be taken by any kind of fraud. You will have to convince them that your bait is the "real McCoy," just fresh from the vicinity, and good handling of the rod and reel is what will persuade them.

Get plug and rod to counterbalance; with a light rod and reel, use a light lure. A heavy plug will soon damage a light rod, and a heavy rod will not cast a light lure properly. Good-quality split bamboo makes a flexible and sturdy weapon. Steel rods may be used in black-bass angling with fairly good results; some of them are very whippy indeed, and they certainly are strong. But for me there is nothing so satisfactory as a whippy, light, split bamboo. The reel should be a modern, level-winding, quadruple-multiplying affair—anti-backlash, if you wish—and the line a light one, testing anywhere from 9 to 15 pounds.

And here is a suggestion which I regard as essential: Use a single-piece wire leader, 4 feet in length, when casting the artificial plug with the short rod. It will run through the guides smoothly enough if attached properly to the line, and is much better than a short wire leader for this casting.

Get a hard-braided quality black silk line, strong enough to stand hard use but flexible enough to spool and cast easily. As your line gets constant and hard wear, it should be examined from time to time for weak spots. Get it light but not too low in test. On the other hand, do not get it too heavy. If it is too stiff, trouble will soon develop, for it will not run through the guides properly and will not handle the plug in the way a light, soft line will. A smooth-running silk line is ideal for bass, and when

of the lightest weight practical will give sporty fishing at all times.

Lures for Black Bass

The market is flooded with plugs of all descriptions and sizes, but many of them are no good at all to the black-bass angler. They seem to be made more for window-display purposes than for taking fish. Selection of a plug, therefore, should be based on *naturalness* and the way it handles on the rod.

It should simulate some form of fish food, such as the frog, minnow, crawfish, water bug, and the like. This is especially true of bass lures, for a bass strikes his bait for the purpose of devouring it for food. If it does not look good to him, he is not going to strike at it, or if he does, he will stop before he gets hooked. So the more your plug resembles the bait which it is supposed to be, and the more you lend it that appearance by your handling of it, the better your chances of hooking the black bass.

A bass is a careful feeder and will not hit just anything that comes along. Sometimes he sees the bait sailing through the air and pounces on it the instant it strikes the water. In that case he has been fooled from the outset into thinking it some bit of food that fell into the water or jumped there—and the plug was placed in the right way to deceive him. But in many instances your bass will watch the bait hit the water, and wait for it to move. It must be lifelike in appearance and handled well, to get the bass to strike it.

Just which colors are best for taking bass is a matter of debate, but from my observations and those of other anglers who have done considerable bass plugging, the red and white combination is one of the best. White is a color which is easily detected both in the water and when sailing through the air. It

stands out clean and bright and gives the fish something definite to look for. The spot of red, usually on the tip, adds that extra dash of color which lends the appearance of blood, and the combination works well for most bass fishing. White alone is also good and has taken many a fish.

Another plug for bass which is gaining in popularity, and deservedly so, is the scale-finish minnow plug, which closely resembles the minnows on which the bass are feeding. Just which plug and color is best is a debatable question, and the old method of trial and error holds good here, as elsewhere. Sooner or later the angler will find the plug which he likes best, and will use it more than any other. Let me add that when the first selection of bass plugs is made, it is well not to get too many, for they will only be confusing, especially to the novice. Get about five to start with, and buy them from a reliable tackle dealer. Get plugs that have been known to take fish before and stick to them until you add to your collection.

Here is an assortment of good size: one wooden underwater plug, one surface plug, one weedless lure with feathers, two wooden semi-underwater plugs, two spinners with bucktail (spinners about an inch in length), two "popping" plugs.

THE FISHING GROUNDS

When plugging for bass, it is all-important to take note of the three periods of the year, and to fish accordingly. In the spring and until early June, bass will be found in shallow and semi-shallow waters. The plug to use then is the surface plug or the one which goes just under the surface, of medium size. The plug should be fished so that it gives off plenty of disturbance in the water, and should be reeled moderately. The shoreline should be combed at this time of year, and each obstruction investigated.

When fishing for small-mouths in midsummer, do not pass up the sand bars, for this is their natural habitat. This is one case when live bait will bring better results than plugs. Lower the minnow or other live bait into the depth off the submerged bar or rocky point, and if the bass are feeding they will usually strike your offering—not always, of course, for the bass is a cautious striker when not in the mood. Keep your bait fresh and use a hook with a spinner attached, and with patience you may induce your quarry to strike.

At all times the depth of the water should be ascertained. If it is quite deep, you can cast with a top-water or semi-under-water plug and get few results; but if a deep-going plug is used and handled properly, the bass may strike hard. Where there are several fishermen in a party, they will have excellent angling if one man will do the guiding. Caution in approach is as essential in plugging for bass as it is in trout fishing, or any other angling where the quarry is shy and wary. Steal over to the spot at which you think your fish is hiding, and do not make a sound that is apt to put the fish on guard. In the evening when all is quiet this is particularly necessary.

After fishing any certain water for a time, the angler comes to recognize the pockets where the bass are lying. Once you miss one or two of the big ones in a given locality, you will be more careful to handle your tackle to the best of your ability. And this handling of the rod is extremely important; accuracy of casting is the watchword in bass fishing.

NECESSITY OF ACCURATE CASTING

Suppose there is one certain spot, just this side of a submerged old log not far from shore. You know that there is one big bass here, for you have had him strike and he has missed. As you and your partner near this place, you plan your approach.

There is always just the right distance to figure for the cast. Do not make a long cast; this is not necessary, nor is it good practice. Get close enough so that you are sure you can hit the exact spot you have in mind, and then, with your plug lined up and your reel running smoothly, flick your plug at the target.

There is a great deal of sport in this sort of fishing. You are aiming at a target, and if you hit the spot "dead center," fish or no, you have the satisfaction of making the mark. And if you should land a bass on your accurate shot right at the edge of the log, so much the better.

Here is an important point: When casting to the edge of the weeds with your spinner, do not try to hit the exact spot at which you think the bass are lying. Instead, aim it at the water some yards away, and then retrieve toward the spot where you think the fish is lying. Do the same when casting toward a log or other obstruction in the water. Let your bait hit the water just beside the log, simulating the actions of some frog or insect which has fallen off that obstruction, and then retrieve toward the log, as the frog or insect might do. Try to copy natural antics in your casting.

As the weather gets colder, plugging for bass is best with the surface or semi-underwater lure, as the bass are mostly in the shallows again. The best time of day for all black-bass fishing is in the evening. Then the angler can work the shoreline with success, for it is here that the bass retire to look for their food.

At evening, too, is when the fly-fisherman really comes into his own. During summer, both big and small-mouths are lurking along shore toward evening looking for food, both underwater and on top. Insects are flying about close to shore, and when they fall into the water the bass are quick to find them and strike. Floating bass bugs are good at such times, fished at the edge of the weed beds and along the shoreline.

A 5-ounce fly rod, 8½ to 9 feet, and a light fly line is excellent tackle for bass-bugging. There is a thrill in deceiving these crafty fish with the right fly, and when once a wary black bass is hooked on this lightweight tackle the angler is bound to have some real fun. If he wins and nets his fish, he has the satisfaction of taking "pound for pound one of the gamest fish that swims" on tackle that is sporting in every sense of the word.

Black-bass fishing with light tackle is in a class by itself. It is a challenge to the fisherman out for the sport alone. Black bass waters are charming places, especially in the dusk of the day, when all is cool and off in the distance the angler hears the rising *plop* of some hungry bass. In my estimation, fly-fishing for trout takes first place, and bass fishing comes next for real enjoyment.

14. Some General Tips on Fishing

Scientific angling is more or less a gambling proposition. If it were not so, it would cease to be a sport and people would not be so anxious to indulge in it. It cannot be reduced to certain set formulas, but in a general way one can develop into a successful fisherman if he can find where the fish are, tempt them with the right lures, and hook and land them properly. Moreover, he must at all times be ready to revise his ideas on the subject. He must be a student of fish lore.

Fish hideouts must be studied by the angler who wishes to fill his stringer. Sometimes you will find that fish have left a certain locality. Streams, rivers, and lakes have a way of changing, due to erosion, storms, and floods. If you find a good spot, it is well to play it for what there is in it, but once it gives out or fails to yield fish when you are reasonably certain your technique is correct, do not work it longer. Instead, look for other places where fish abound, and try them.

Lures especially need checking from time to time. Fish will not take any contraption that is thrust before them; they are particular about what they accept as suitable food. So the angler must determine what fish he is after, and then give them the bait most apt to lure them into striking. Don't buy every new lure that is placed before a gullible public. Select a few that have a likely appearance, and try them out. Sooner or later, by elimination, you will select certain proved ones which will always occupy a place in your tackle box. Expert fishermen in your locality will be glad to give you advice on this score.

There are some lures that will take fish under most circumstances; if you have found what they are, use them. If not, try others until you do.

Anglers are apt to get into a rut. If you are not taking your fair share of fish, something must be wrong. Try to find out what it is and correct it. Some anglers are not particular whether they catch fish or not, but the majority like to get a reasonable number of strikes. Study the game from all angles.

Here are a few tips gleaned from much experience and a certain amount of thought and study:

GOOD CASTING

Good casting means fish, everything else being equal. The successful caster is the one who places his bait where he wants it with the least effort and commotion. You will find some anglers who make a great disturbance with their casting. There are some fish that may not object to this sort of angling, for instance when they are down in deep water, or very hungry, or both; but for the most part, the quarry will not strike under these circumstances. Inaccurate and splashy casting by a noisy person will definitely scare the fish and spoil the angling in that spot for some time.

This applies especially to bass fishing. A bass is a sporty and sensitive fish, somewhat like the trout in this respect, and it takes good fishing to lure, hook, and land one. When the angler approaches a bass hideout he must do so with utmost caution, being very careful to keep hidden and to send out his bait with extreme skill. It must look natural. This is where practice in accurate bait-casting is rewarded. The deliberate caster will get the fish, provided he has bait as good as the next man, for he will place his lure just where he wants it with clean-cut pre-

cision, laying the line and lure on the water smoothly, gracefully, and in a natural manner.

As I have pointed out elsewhere, good casting means good retrieving as well, and the accurate caster will be very careful in this regard. He will try to present and retrieve his lure in such a way that it will simulate the movements of natural fish food. Above all, do not take the bait in too quickly. Make it resemble the movements of a small minnow, for instance, and a wounded minnow at that. Change the pace of your retrieve from time to time by giving the rod tip a jerk or by reeling shortly, then slowly, then shortly again. Sometimes your quarry is lethargic, especially in the summer calm, and can be awakened to striking by sharp or erratic movements of the bait.

NIGHT FISHING

Night fishing is almost always productive of fish. You will find that at this time the big ones generally come out to feed, and for that matter the smaller ones as well. This is particularly true of lake fish. You may get them out in deep water, but the best place is usually in toward shore, for after nightfall they come shoreward to feed on minnows, frogs, and the like. As a rule the waters cool off during the night, and this in itself lends activity to the fish, chiefly in midsummer. During the heat of the day the fish become slow, but when the cool of nightfall approaches, they begin to move around.

You will find many veteran fishermen, particularly the natives of the lake regions, who always wait until nightfall to do their fishing. This may be largely due to lack of time during the day, but even when they do have time, they will tell you that evening and early morning is when they like to fish.

Bass fishing is very good in the evening. The bass is a finicky fish, for the most part, but when you hit the right spot at the

right time you may hook one on almost every cast. The wall-eye is another fish of this nocturnal type. He will smash everything you can throw to him when he is on the rampage for food; but do not be at all surprised if, like the bass, he stops shortly and does not strike again for some time. The idea is to be there at these certain times, and early evening, night, and early morning are definitely the best.

CHOPPY WATER

"The northern likes a turbulent sea." Some time ago I made that observation in an angling article, and after more angling and study I still find it true. Not only for pike but for bass as well. The northern and pickerel will strike like wild on an overcast day with a good wind kicking up white caps. Find a spot where you know they feed, and you are reasonably sure of taking fish.

Investigate the weed beds over which the waves are breaking. That is where the natural food is likely to be found, and the fish will surely go to that sort of water. Anchor your boat safely, and with a good command of the lake shoot your lures hither and yon. It is easiest, of course, to cast with the wind, and I almost always do it, setting the boat in a spot where I can cast both with the wind and over the fish bed.

If the wind is coming in to your shore—perhaps where your camp is located—so much the better. There is the possibility that you may cast from dock or boathouse and take fish, especially wall-eyes in rough water. Autumn is the best time for this sort of angling. Then the wall-eye may be found in the surf feeding voraciously on such bait as comes along, and will take both natural and artificial bait avidly. Great northrens, pickerel, and muskellunge can be lured with great success when the water is choppy and cold. Autumn and spring are the best

times, but the rough water of midsummer also makes them eager to take bait, and they fight your gear with all their might.

LARGE LAKES

To find the best fishing spots on a large lake is no easy job unless you employ a guide or get tips from local fishermen such as the man from whom you rent boats. You can find some good spots by yourself if you watch and experiment. Trial and error will do it, but an easier way, without asking anybody for information, is to watch the resident anglers or others who come in with good catches. There are some fishermen who go to the same spots quite regularly, and they certainly would not do so if they did not take fish there.

Points and islands are almost always good. There may be a bar or reef running out from them, and it is well to explore around such places. They are often the outcroppings of reefs and ledges, and by angling both the shallows and deeps you usually get some strikes.

During midsummer it is wise to venture out into deeper water, for then the fish retire to the deep holes where the water is cool and where they must be fished with underwater baits. Live bait is usually best for this fishing, and it must be put down near the bottom, using a sinker if necessary to bring the lure down there. Frogs, minnows, and crawfish are best. This is one time when long casts may be of use. Shoot your bait out far over the holes, and allow it to sink. Retrieve slowly, giving it a jerk at times to lend attraction to the lure. The bait must be placed down level with the fish for best results. Some fish will come up and strike above this level, but are more apt to strike when your bait goes to them.

By no means neglect the weed beds. Use a weedless hook if necessary. And in all your lake fishing, by the way, here is a

tip to remember: Pork rind attached to a lure somewhat on the order of a Daredevil—spoon with stripes running in curved lines—is a winner. Such bait is not so costly as minnows and is longer lasting. June Bug Spinner and pork rind is also a killer. I know one fisherman who swears by this combination, and he comes in with catch after catch of record fish. By all means give it a try.

SMALL LAKES

Learning the best hideouts for fish in small lakes is not such a problem. Many of these small lakes are “pot-holes” with heavy vegetation in spots, deadheads, rocks, and deep, shelving points—pretty much like larger lakes, but much easier to experiment with. Take a few turns around such a small water, trying this spot and that, and always watching for the places where the water runs into deep pockets lined with weeds and logs. Always cast toward shore, and begin your retrieve quickly. Give your bait a *plop* by snapping the rod tip back just before the bait lands. It excites the fish to strike.

There may be islands in the lake. Give them a cast or two, especially in the shaded spots near lily pads and rushes. Such places are small-mouth and big-mouth bass water, and usually productive.

And here again I cannot urge you too strongly to save some of your angling time for evening. Not only will you find fish ready to strike then, but when you do discover them it will make you want to go back there later. For once you have found where fish hide out, you will always go back for more.

STREAM FISHING

There is a fascination all its own about stream fishing, either by wading, walking along the bank, or boating. The latter is

the best and most enjoyable method, for the reason that you become "one with the river" and are in the best position to take fish. You certainly can steal upon them quietly. Canoeing is ideal, but any sturdy fishing boat is good. The utmost caution is needed in moving up or downstream. Be careful not to bang the oar or paddle against the craft, for this definitely "puts the fish down," especially the big fellows which lived long only by being crafty.

Take your time and make short casts in all the likely places. You will find the deep shaded bends one of the best spots, and if they are weedy, so much the better. Do not pass by old sunken logs, big boulders—both above water and submerged—and piles of old driftwood, without a cast or two. If possible, pick out a lure which will tempt all the fish that inhabit these stretches. For instance, if you know that you will find northerns, bass, and wall-eyes, with an occasional muskellunge in somewhat the same area, select a lure that will interest any one of them. That is entirely possible. A June Bug Spinner with a good-sized mud-minnow will do it quite nicely; there are any number of plugs and spinners which will do the same thing.

Have an anchor handy in your boat so that if you strike a spot that looks good and does produce fish, you can stop right there. Drop your anchor lightly; be as quiet as possible. Not only will you get fish in this way, but you will blend with the scenery and become one with it so that the creatures of the wild will stop and look as they pass.

It is always enjoyable to have one man act as oarsman or paddler, but it is possible to work your craft up or downstream and still get a fair amount of angling en route. This is especially so when you find a good spot and can anchor there. By all means investigate the rapids and the deeper stretches just be-

low them where the fish linger in quest of food that comes along. Anchor or stand just above these rapids and cast across and down, allowing your lure to drift with the current and retrieving slowly. Allow the lure to go down deep in the quiet eddies, and if you feel a strike here, set the hooks quickly or your fish may escape. Your strikes in the rapids are usually sharp and strong; nevertheless, set the hooks with a good jerk of the rod tip and your quarry will probably be hooked.

All in all, lake and stream fishing are pretty much the same, except that on a lake you are fighting a breeze or wind, whereas on a river you must contend with the current. The best places in both lake and stream fishing are, as a rule, pretty much near the following: dams and obstructions, deep shaded pools, incoming creeks or streams, rapids, sand bars and ledges, rocks and boulders, sunken logs and deadheads, driftwood and fallen trees, weed beds and lily pads.

When angling for bass in streams, work your lure into the current. This fish is somewhat like the trout in his habits, for he seeks cold, swift water. Plan your cast before you make it; place it deftly and sure, where you think it will bring results. Then your angling efforts will do you good.

Camping

15. Preparing for the Camping Trip

Before starting on your camping trip make sure your equipment is in good shape. This is especially necessary when it may be subjected to wind and rain; and even if you do encounter the mildest weather imaginable, it is reassuring to know your equipment will not fail you should the weather change. The capable camper can do his patching and mending as he goes along, but it is much more easily done in the comfort of the workroom at home, with materials close at hand. With your outfit in condition before you leave, you can expect a maximum of service from it.

Start the overhauling in plenty of time so that at the last minute you will not be rushed. Early spring is a good time to check your outfit, or better still just after the last trip. Then the mistakes of the latest outing are fresh in your mind and you know what steps are necessary to put your equipment to rights. To do a good job, drag everything out of its storing-place and look it over critically.

TENT

Look first to your tent shelter. The returning camper is all too prone to toss the tent or tarpaulin in the storeroom without a thought as to what may happen to it there. It should never be left long in the packing bag; the tent may be damp, and by closing it off from the air, you may encourage mildew. If damage has been done, remedy it as early as possible. First wash the tent with soap and water, and then apply waterproof.

If the tent needs waterproofing, find out from a manufacturer what formula is best. Do not treat it with any questionable solution that may ruin it.

A light, loose-weave material usually requires some formula containing a paraffin filler. This mixture is cheap and easy to apply, and does a good job, although it adds weight to the fabric and makes the cloth slightly stiff in cold weather. You will find, on the other hand, that in warm weather, a paraffin-treated tent handles easily and rolls up into a compact, soft bundle.

If the weave of the tent is heavy or close, an alum-and-lead, or alum-and-soap mixture is effective. A suitable waterproof for your tent can be made by dissolving three pounds of sugar of lead and three pounds of alum into two water-pails of tepid rainwater. Soak the tent in this solution and let stand overnight. In the morning lift it out and hang it up to dry. This solution, if made and applied correctly, will protect the tent from mildew, water, and fire. The latter point is something to be considered on a trip where much wood is burned.

Clean the tent well before applying waterproof, so as not to seal in dirt and dust. Soap and naphtha will remove grease spots. Be sure to cover the tent completely from top to bottom when applying the waterproof. If necessary, apply two coats, and then test it thoroughly by setting up the tent and spraying with a hose or buckets of water. Do not forget the tent ropes; a coating of the solution will give them strength and durability which will make them last for years. Replace any worn or frayed rope ends.

Check carefully the points at which the ropes are joined to the tent. Much strain is placed here at times and the fabric develops rents. Check especially at the bottom if your tent has ground cloth. Patch the fabric with waterproof cloth and heavy

thread if it shows signs of wear. Water seeps in at the floor line all too easily; one little rent may be enough to soak the bedding and render the tent unlivable.

If you use your tent for summer camping, look at the bobbinet netting. If the mesh has proved too coarse, sew on an extra piece of cheesecloth to shut out the smaller insects. The use of extra mesh may be objectionable to the camper who likes a lot of air, but there sometimes is no choice. Poor ventilation is usually a lesser evil than perpetual torment from insects.

FIRST-AID KIT

Check over your first-aid kit to make sure you have enough supplies to tide you over in medical emergencies. Your cruise may take you a long way from the doctor, and if you have an ample first-aid supply to take care of bruises, cuts, insect bites, burns, and skin irritations, you will have a feeling of safety. Replace old iodine, antiseptics, and other drugs which may have lost their effectiveness. A good first-aid kit is an investment in security.

PACK

If your pack is of strong material, it will stand hard wear for many a year. Eventually holes may develop; patch them with canvas and heavy thread.

Look especially to the straps of your pack. If loose, get a box of rivets and put a few where they will do the most good. Rivets are easily applied with a hammer and a holder contained in the box, and should be a part of every outdoorsman's equipment. Keep a box in the bottom of your pack for emergencies. When straps break on snowshoes, skis, packs, or other such equipment, they are handy and do a strong, neat job. You can keep on patching straps as much as you wish when they tear,

but if they are really weak you had better replace them and be on the safe side.

COOKING OUTFIT

Your cook kit may need repairing since last you put it away. It too should last for many years, and if parts break on it they can be replaced quite easily when you have the materials at hand. Check for holes and mend them with solder. Smooth out dents in aluminum with a block of wood and hammer. Use a piece of wood that fits the curve of the utensil, and do not strike too hard, for the metal injures easily. Enamel-ware does not lend itself readily to smoothing-out with wood and hammer, neither, however, does it dent so easily as aluminum, which is a feature in its favor.

Clean utensils thoroughly of soot. It is surprising how much improvement can be made on the cooking utensils with just a little care.

Do not use your cooking outfit for the kitchen if you can help it. It is better to keep it all together in the storeroom so that pieces will not become separated and the loss discovered when you need them most—on the trail. Store them all carefully together. When in use, carry your utensils in a waterproof canvas bag.

FOOTGEAR

After returning from the woods, do not throw your camp boots and shoes just any place. First of all, clean them with a good saddle soap, and then grease them solidly with boot grease. To keep them from getting stiff and out of shape, it is well to place shoe trees in the boots or stuff the bottoms tightly with paper.

If your boots need mending, have it done before storing

them away. The sooner this is done, the better; there is no telling when you will want them next. Soles and heels get the most wear, but so do seams, and a good shoe-repair man will put them in good condition at a minimum of cost and a maximum of good to your boots.

If your footgear is worn out and you decide to get something new, it is wise to get it long before any extended vacation. Then you can break your boots in on short jaunts so that they will be comfortable for your major vacation cruise.

By all means repair your waders and hip boots. You can do this yourself with rubber patches if holes or weak spots develop, but the vulcanizing shop can do it better. If you see where your waders are wearing thin, by all means patch here too, to save them from wearing through and making a lot of trouble for you. Always carry a patching kit when angling. It is very annoying to snag your hip boots or waders and not have the equipment with which to mend them.

If you possess boots of the leather-top, rubber-bottom type, it is well to grease the leather thoroughly with boot grease and apply a coating of glycerine and alcohol to the rubber bottoms. These applications strengthen the boots considerably, make them wear longer, and keep them trim and soft. To keep the stitches between the leather and rubber materials strong and intact, give them a coating of shellac or rubber cement. This application helps waterproof the boots at this spot where water is most apt to enter.

CLOTHING

If you have not looked at your outdoor clothing for some time, it is a good idea to get it out and examine it for moths. This is especially necessary with woolen clothing. A few moth-balls placed here and there in the pockets should keep out the

offenders, but if damage has been done, mend it before your trip.

All of your equipment will be the better for a little attention to weak spots. Look it over early and save time and temper later on.

FISHING TACKLE

Fishing gear needs attention from time to time. Bamboo rods should not be stored in a hot place. If you must keep them in a steam-heated apartment, choose the space which is the coolest; but if you have your choice of the house, place them in the basement or the attic. Sometime before your intended angling trip, bring them out and look them over. Oil your bamboo especially. If need be, go over the bindings. Inspect the varnish; if it is peeling, give your rods a light coat of extra-light coach varnish.

Steel rods also need care. Oil lightly all over before putting them away, especially the ferrules where most rust seems to enter. Watch for rust spots; if the enamel is worn, touch it up with a new light coat.

Your split bamboo, being of more delicate construction, needs more care than that. Dry rot must be particularly guarded against. The wood must be varnished whenever it seems to require it. Give it a light coat in a warm, dry room.

The silk bindings will have to be gone over at times. For preserving, a small bottle of best-grain alcohol shellac is good; when applying it, be careful not to apply to the rod itself. When varnishing use a $\frac{3}{4}$ -inch oval or flat brush, and when shellacking use a good-quality round artist's brush. Dry the rod by hanging it in a place where the dust will not get at it.

When putting your rod away, wipe it dry and straighten the tip. Hang it up by the tip if you can; such care straightens it

out and prolongs its life. Do not twist the ferrules when taking the rod apart; this is likely to ruin the rod. Get somebody to help you take it apart, if you cannot do it by yourself. Pull it straight out, and do not twist it.

Care is essential to the life of your reel as well. Dirt and sand creep into it, especially when the reel is oily. Before putting it away for any length of time, clean off any sand or grime, and place a little oil on the bearings. Grease gears lightly with vaseline.

TOOLS

Do not forget to put a sharp edge on your camp ax and on your knives. With a grinding stone you can quickly put a keen cutting edge on tools, but this is not so easily done while on the trail. After sharpening them at home, keep the edge touched up with carborundum stone. If the handle on the ax is frayed, replace it with a new one. When in camp, never lay the ax on the ground.

Carry with you a small assortment of such articles as pliers, screwdriver, large safety pins, needles and thread, nails, rivets. Keep them ready for use in a small hold-all which is hung up when camp is pitched. Care and foresight will keep your equipment in shape.

YOUR COOKING UTENSILS

The cooking kit should be chosen with an eye to efficiency. It need not be large—the smaller the better, as a rule—but it must contain certain essential pieces for successful cooking. The nesting set of camp ware put out by most outfitters is a good outfit to have. It includes cooking utensils, compact and handy, all fitting into the largest kettle, which, in turn, is

covered by a waterproof bag. A set like this has no bristling spouts and handles to protrude; it is a common sense, light and durable outfit for the camper.

Some of these sets are made of aluminum, but that is not necessary. I find the tinned steel outfits of seamless, sturdy construction to be all the camper can wish for, and inexpensive besides. This steel-tinned material (known as enamel-ware) will come through many seasons of hard usage.

If you do obtain aluminum, do not get cups of that material, for aluminum cups hold the heat tenaciously and will burn the mouth when filled with hot liquids. If you can, however, get a heavy aluminum frying pan. Thin pans warp badly, scorch the food, and cannot be used for pan broiling, since the food sticks to them. Getting the right frying pan is important, for this utensil sees heavy duty in outdoor cooking. Second choice after aluminum is a heavy steel pan.

Some campers prefer a frying pan with a slotted short handle into which a wooden stick can be inserted and taken out at will. This arrangement is convenient; a folding wire handle, however, is as good and sometimes better. Get a close-fitting cover for the pan and you can then use it as a baking oven if you desire.

Cups in the nesting kits have the open handles so as to fit one into the other. Cups can also be used as soup dishes, and it is, therefore, a good idea to double the number of cups per person. Each outfitter has his own idea of a nested cooking kit, but they are rather standardized as a rule. For a two-man outfit the following utensils will be enough to prepare any and all meals: 2 kettles, 12-inch frying pan with folding handle, 4 cups, 2 plates, 1 mixing pan, 2 knives, 2 forks, 2 spoons, salt and pepper shaker (entire weight, about 3 pounds). This outfit nests well and is carried in a duck or canvas bag. As further utensils, if you

have the room, carry a butcher knife in a leather sheath, a pancake turner with a wooden handle, and a good-sized cooking spoon. Add to this a folding baker of aluminum or tin.

For any sort of camping a collapsible reflector baker, carried in a waterproof bag, is indispensable. It will do all the baking and roasting that can be done in a regular stove oven with as much dispatch and even better results. One tires of food prepared at all times in the frying pan. The reflector baker provides a nice change and helps make camping a pleasure.

It can be used before either an open fire or a camp stove, and greatly simplifies the cooking problem. With an open fire it is well to build a small fireplace of stones or green logs, and when the fire is burning well to set the baker a few inches from the front of it, so that the blaze reflects into it. The heat can be regulated by moving the baker.

Various foods such as biscuits, bread, johnny-cake, shortcake, and baked beans can be turned out to perfection on a baker. With a little experimenting a baker can be used successfully with a wood stove or a gasoline stove. It should be placed quite close to a wood stove for best results, with a very hot fire. Portable gasoline stoves are coming more and more into use, especially for the auto camp. During wet weather they are a welcome addition to any camp; you can get a meal prepared with them quickly and with little effort. Either a two-burner or a three-burner type is handy. Do not try to use regular automobile gasoline in them; stove gasoline must be used. This portable stove is not for the nomadic camper, however. There is nothing which beats a wood fire for cooking, and the "go-light" camper cannot be bothered with the extra weight of a stove.

Carry a good ax, three-quarter or full length for best results. I recommend one with a 2½-pound head and a 28-inch hickory handle. If weight is to be avoided, a three-quarter ax will

do, with a 19-inch handle and a 2-pound head. If necessary, you can get along very nicely with a sharp hatchet.

Do not forget the vacuum bottle. You can do without it, of course, but it is very handy for carrying hot coffee or tea for lunches on all-day hunting and fishing trips.

CAMP COOKING—THE GRUB STAKE

Every camp should have certain staples for the grub supply, such as flour, bacon, beans, oatmeal, tea, sugar, milk, dried fruit, salt, eggs, cornmeal, salt pork, corned beef, butter, and pancake flour. Just what kind of food to procure and the amount needed depends largely upon the size of the party and the transportation facilities at one's disposal. First be sure of the staples, and then if you have room you can include luxuries such as fresh fruit, cream, etc. Individuals vary in their tastes and their capacity, and there are no set rules as to the amount of food to take. Check your own grub with the food lists found in outdoor cooking books. The storekeeper at the cross-roads store can also give you valuable hints.

Where grub is carried by pack, pack horse, or canoe, it must contain a maximum amount of food value with a minimum of bulk to be of most use. Dehydrated foods are handy here. They are becoming increasingly popular, for they take little room and require no refrigeration. This is just the way to take vegetables, eggs, etc., into the wilds. A package of a few ounces is sufficient for several servings, and you will find that more and more foods are being packaged in this concentrated form.

As a rule, the summer camper does not indulge in the same amount of exercise as the deer hunter and does not require so much food nor such energy-building food. Light meals are entirely in order for the warm months; but when the weather is

brisk and the camper active, he needs more of the heavy foods, especially those rich in fats.

Fruits and vegetables should be a part of the diet both winter and summer. Such fruits as prunes, raisins, apricots, and apples aid the digestion. Any canned fruits are welcome and quickly served. As desserts they satisfy the craving for acids which camp life usually brings.

Pack foods in medium-weight cloth bags, with draw-strings, and place these bags, in turn, in waterproof bags. In some camps pry-up tins can be used to advantage; but for the back-packing trip, tins are to be avoided if possible. Place labels on each of your bags so they may quickly be identified.

Bread is important, and if you can buy it, do so and save time. Waxed paper keeps it fresh for several days. Supplement your bread supply with biscuits and camp bread, which are readily made in a reflector oven.

Most camp cooking must be done without a stove, and the camp cook must get used to doing without kitchen appliances. Over the open fire he has different problems than over the kitchen range. By adhering to certain simple underlying principles of different methods of cooking his problems are readily overcome. Simplest and plainest methods are best. Meats may be cooked in as many ways over the open fire as over a stove. If you have the time and inclination, you can roast, bake, stew, or boil foods. Prepare them in an appetizing and palatable manner.

When hunting and fishing, meats and fish can easily be added to the larder, and in cold weather they provide good sustaining food. The game bagged can be eaten with relish and economy, especially if cooked well. Rabbit, venison, and partridge are a real treat, and simplify the cooking problem.

To get the most out of such meats, the cook should clean and

prepare them properly. Game meat requires more specialized attention than domestic cuts. In the first place, it is fresh from the forest, and if not taken care of promptly will acquire a wild and strong flavor. To prevent this, game should be cleaned shortly after it is killed. Remove all fur and feathers and make a clean job of cutting out the wounds, especially in the case of rabbit and birds.

After a thorough cleaning, hang the meat for at least a day. When freshly killed it is generally tough and tasteless, but if hung up for a while it will improve greatly in taste and quality. This is especially true of deer meat, which should always be given a chance to set and turn cold.

The main idea in camp cooking is to serve enough and at the same time to vary the diet so that it does not get monotonous. Breakfast should be substantial. You want foods that will keep you going until far into the day—certainly until noon. Proteins which remain in the stomach longer and do not require much cooking are best. Include fats with the same meal, for they supply even more heat and energy than proteins. For breakfast, pancakes, pork sausage, and butter, preceded by a dish of oatmeal or other cereal, is nourishing.

The noon meal should be satisfying as well. Something like baked beans with salt pork, bread or biscuits, butter, coffee, sugar, cream, topped off with apple-sauce or some other canned fruit, makes a good meal. Always serve enough. With a heavy breakfast your noon meal need not be so elaborate, but it should be well balanced nonetheless.

In the evening you can serve foods which are easily digested, even though they take more time for preparation. As a rule, the camper has more leisure in the evening for cooking. Rice for this meal is very desirable, for it is easily digested and contains much nourishment. It can be prepared in so many different

combinations that one does not tire of it, and it is not bulky. It may be boiled alone or with raisins, made into puddings, used in soups and stews, cooked with cheese, and made into cakes, to mention only a few ways.

RICE

One of the simplest ways of cooking rice is as follows: Wash the rice. Put some salt in a pan of cold water, and get the water boiling rapidly. Sprinkle one cupful of rice in two quarts of the boiling water. Boil for thirty minutes. Be careful when putting in the rice that you do not dump it in. Sprinkle it in carefully so that the grains will not stick together and get lumpy. After boiling, place the kettle of rice near the fire so that the grains may dry and swell. This makes an appetizing evening meal.

MACARONI AND CHEESE

Macaroni is also handy for supper and can be prepared in many different ways. One welcome dish is macaroni and cheese. To prepare it, cook the macaroni in boiling water, salted, for about twenty minutes. Drain thoroughly. For each cup of macaroni add one cup of canned tomatoes. Add pepper, salt, and grated or sliced cheese. Pour enough water or condensed milk over this to cover, and bake for fifteen minutes.

MEATS

In the hunting camp, too much emphasis cannot be placed on those meals at which meats are served. Perhaps they will be eaten at every meal, either as the main dish or as left-overs. The cook for the hunting camp must be expert at preparing game such as rabbit, grouse, quail, squirrel, venison, and the like.

In cooking meats the simplest methods are best. Look to your frying pan as one of the best means of preparing meats, though

not the only one. Broiling is another good method, particularly for venison, for by this means the flavorful meat juices are retained.

BROILED VENISON

Broiling is best done over a bed of clean hardwood coals.

The meat should first be worked into tenderness by pounding and pressing with a knife. Cut slices at least an inch thick; and then holding your meat with a long fork or wire griddle, thrust it into the flame for a second. Turn it and thrust it in again, thereby searing it quickly and sealing in the juices. With the coals clear and flaming, the meat should then be broiled, turning it over from time to time.

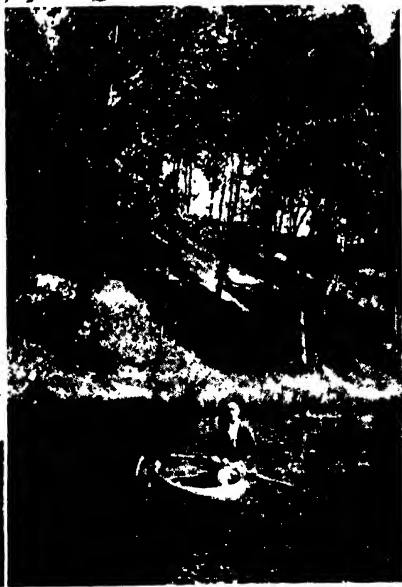
In five to ten minutes, depending upon the thickness of the steak, it should be done, with a clear red color, or darker if you wish it well done. Season with salt and pepper.

ROAST VENISON

Venison takes very well to roasting, and the best part for this method of cooking is the fore saddle, with the shoulder next best. The fire should be a strong blaze built against a pile of rocks to reflect the heat. Sear the outside of the roast in the flames, and then cut gashes in the meat and press shreds of pork into them. Hang the meat by a strong string from a pole or tripod in front of the fire, with wire attached next to the meat so that the string does not burn. Keep the heat even, and turn the meat from time to time until done. Catch drippings in a pan underneath and make a gravy out of them.

CLEANING RABBIT

Rabbit is a game dish that every camp cook should be able to cook properly. If the game is tough, parboil it well; if young, it will soon get tender. Clean the abdominal cavity in the field,



Upper left Always land a canoe broadside. *Upper right* A well-balanced, well-handled canoe on picturesque Paint River, Mich. *Lower left* In rough water, dig your paddle deep. *Lower right* A safe but heavy canoe with air chambers.



PLATE 18

Upper A wall tent is very useful for fall and winter hunting trips. *Lower left* A log cabin provides relaxation and comfort all year. *Lower right* A cook stove and heater is a nice combination for a log cabin.

if at all possible, for the sooner it is cleaned the better the meat will taste.

To clean and dress a rabbit properly, cut off the forefeet at the first joint, then cut the skin around the first joint of the hind leg, and pull loose. Slit the skin around the underside of the leg near the back. Remove skin from the hind legs, and tie legs together. Now pull skin strongly and steadily over the head, slipping it over the forelegs as you reach them. With a sharp ax cut off the head, which takes the entire skin with it. Wipe the game with a damp rag. If not already done, remove entrails by slitting down the front and cleaning well.

FRIED RABBIT

In getting the rabbit ready for the pan, it is well to cut out the ribs, retaining only the front and hind quarters and the saddle. The parts in between do not have much meat anyhow and are usually strong tasting. The hind saddle is excellent eating—in fact, the best of all if flattened and softened with a hatchet, then parboiled and fried brown in butter or pork fat.

When cleaning rabbit, always save the heart and liver. Remove every bit of fur, and look well into the wounds. Where blood has settled, cut with the point of a knife, removing the black spots, and soak in warm water, drawing out the blood. Since game leads an active life, the meat requires more specialized treatment than domestic cuts, and must be cooked accordingly. Fried rabbit is especially delicious, but it should be parboiled for the best results. Season it well. Rolling in flour helps to retain the flavor.

BROILED RABBIT

Roasted or broiled rabbit is appetizing, but this method takes somewhat longer. If you have the time and patience to roast,

do it in this way: Wash the game thoroughly in cold water, then dry. Sprinkle with salt and pepper on the inside. Fill with a stuffing of bread-crumbs, onions, cabbage, and canned milk, well mixed. Fasten the opening and spread the game with fat. Sprinkle with salt and pepper, and roast until tender in an uncovered pan over hard glowing coals.

FRIED SQUIRREL

Squirrels make delicious eating, and for the outdoor camper the quickest method is frying. To dress them properly, cut off the heads, tails, and feet. Slit the skin on the back crosswise and pull the skin off in two parts, head and tail. Clean the game in several waters, and cut into halves. Parboil the meat, both front and hind legs, for about twenty minutes if the game is young or twice as long if old. Throw the front legs in a pan to be used for stews. Place the hind legs in the frying pan, covered with butter or pork fat, and fry to a rich brown.

ROAST PARTRIDGE

Ruffed grouse are easily cooked over the open fire; they are best roasted or broiled. Clean well, then split the bird down the back, and skewer it together to flatten. Cut gashes into the breast, and press strips of bacon into the meat; then salt the bird. Cut a hardwood stick two feet long, and tie the bird to the end of it with a piece of string and wire (the wire next to the bird to prevent the string from burning). Then thrust the other end of the stick into the ground near the fire. Slant it against a log or rock, if necessary, so that it will not fall. Let the bird lean toward the coals of the camp-fire. Keep the bird revolving slowly over the flames by giving it a twist at times; the idea is to heat it evenly and strongly. Roast to a rich brown.

Another method of roasting grouse which takes some time

but gives excellent results, is as follows: First make a generous dressing of cabbage and onions, finely cut and minced. Crush the ingredients well into each other with a large spoon so as to blend the flavors. Add bread-crumbs and a small portion of canned milk to this mixture, enough to make it wet, and flavor with salt and pepper. Fill your bird with the dressing, and sew it up. Place in the pan, spreading more of the dressing over the bird, and lining with strips of bacon. Season with salt and pepper. Roast for thirty minutes or until tender. When a sharpened sliver will pass through the breast, your bird is done and comes out looking very fine indeed.

COOKING FISH

Large fish such as pike and pickerel should be cut into steaks. Cut in half from head to tail, close along the backbone, and remove the backbone. Skin the two slabs of meat; roll in meal, bread-crumbs, or cracker crumbs, and fry it. For any fish under two pounds a frying pan is large enough.

Large trout should also be split down the back so as to stay flat in the pan. Have the fat in the pan sizzling hot. Dry the fish before placing it in the pan. Roll the fish in meal, crumbs, or a mixture of meal and flour, and fry to rich brown, cooking evenly.

Rolling fish in meal or flour prevents it from browning too soon and also keeps fat from entering the meat. The surface of the fish remains moist and the flavor is retained.

BACON AND HAM

Bacon and ham should certainly be on the bill of fare. Bacon should be sliced thin and fried over light coals. While slices are still clear, turn them over. Do not let them get dark, but remove

while still light brown, and season with pepper. Don't fry bacon too long, for it gets dry.

Ham likewise should be fried over a light coal fire and turned frequently. It is easily broiled and really delicious if done properly.

SOUPS

No camping trip is a success unless it includes a meal or two of real honest-to-goodness soup, especially when the campers are hungry and cold, or confined to camp by rain. The kind of soup I mean is no thin trickling dish, but a good, hot, steaming square meal.

Pea Soup

On a cold day there is nothing quite like a big bowl of steaming hot, split-pea soup cooked with a ham bone or generous parts of salt pork. It will carry you through a hard portage or a stiff paddle on a windswept lake. Split peas are my preference; they require no pre-soaking, and make a soup with real body.

Soak whole peas overnight if at all possible, in the camp kettle. If you are using salt pork, it must be put into cold water in another kettle and slowly brought to boil. Throw away this first water or your soup may be salty. If this first water is thrown away, the peas are added after the pork has been boiling about thirty minutes; otherwise they are put in when the pork is first put on to boil.

It will take from 1 to 1½ hours for peas simmering in the pan to reach the right consistency, that is, to break into pieces and make the best eating. They will then turn into a heavy, thick, nourishing stock, which, coupled with the salt pork or hamshank—the latter is my preference—will make a delicious camp dish.

Remember to keep a supply of boiling water in another

kettle to add to your soup when the liquid goes down. For best results your soup should simmer.

Bean Soup

Somewhat on the order of pea soup, and even more delicious according to some folk, is bean soup made of navy beans. Very little of it is needed to make a nourishing meal. A quart of navy beans will be enough for four persons and will fill a regulation camp kettle. The beans swell, and this should be taken into consideration when cooking them.

You may add other vegetables like onions to bean soup, but for my part I prefer it to be all beans, with a meat base of salt pork or bacon, the first being preferable.

Use quick-cooking package beans for best results; they are time-saving and economical. Place the meat in cold water and bring it to a boil slowly; then throw this first water away so that your soup will not be strong and salty. Now boil the salt pork for about twenty minutes, and then add the beans to it. Do not use too many beans for the size of the kettle, for they swell up.

If you do not eat all this soup at the first meal, you will enjoy it later, warmed up. Making bean soup may take a little time and care, but the effort is worthwhile.

Scandinavian Pea Soup

For campers who like whole dried peas, this recipe makes a very delectable soup, and serves four:

Soak 2 cups of dried yellow peas overnight; drain and add about 3 quarts of water. Heat to the boiling point and cook rapidly to loosen skins. As the skins rise to the surface, skim them off. Boil well for one hour, and then add about a pound of salt (or fresh) pork. Simmer for about two hours, or until meat is tender. Season with 2 teaspoonfuls salt, and serve piping hot.

Old-Fashioned Split-Pea Soup

For campers who like vegetables with their pea soups, this recipe is heartily recommended as being everything they could wish for:

Place 2 or 3 pounds of ham-shank (or a piece of salt pork), a carrot, an onion, 2 whole potatoes, and 3 quarts of boiling water into a kettle. Boil for one hour; then remove ham-shank. Rub vegetables through a strainer. Skin ham, and put back into the kettle along with the strained vegetables.

Add quick-cook split-peas, boil 1 hour. Season with 2 teaspoonfuls salt, a little pepper, and 2 tablespoonfuls ketchup. Ham can be removed or left in the soup, as you prefer. If soup is too thick, thin it with boiling water. This will serve four hungry campers.

Corned-Beef Stew

One other recipe which I have found a favorite should be added to the soups, for it is somewhat similar. Corned beef is usually included in the camper's supplies, and if so can be used in making a really wonderful soup.

Boil some potatoes in the kettle, and get a few fresh vegetables. If you have none fresh, you may add a can of vegetables to advantage. Baked beans will also do very well to add to your soup. Put in an onion or two to give the soup a better flavor, and throw in some cereal such as barley if you have any on hand.

When these ingredients are almost done, put in a can of corned beef, and let it cook for about five minutes. By this time you should have a well-cooked soup with good body and stock, fit for a king. You will find that crackers or toast dropped into the soup give it just the right civilized touch. By all means try this dish out in the woods at least once.

16. Packs and Packing

To get the most out of your camping trip, first of all make sure you have the right sort of pack, which will carry your equipment to best advantage.

Much has been said about the tump-line or head-strap method of packing. For the Canadian voyageurs who carried large loads of furs, the use of the tump-line was a necessity. The canoeman attached his head-strap to a bundle of furs, packed it to its destination, untied the tump, and returned for another load. This was in the colorful day of the fur brigade, but the same packing problem does not exist today to any appreciable extent. For the average camper who contemplates a trip of two or three weeks' duration, the Duluth type of pack or something similar is usually all the equipment needed for packing and portaging. For a longer journey into the wilderness, which makes many supplies necessary, the tump-line may be needed equipment. If the camper has several packs, he can use the tump to advantage.

Some outdoorsmen highly endorse the pack cloth in place of a pack sack. This is a cloth tarpaulin in the center of which the duffel is piled compactly, and the ends pulled together. This cloth is fine for winter and wet-weather camping; it is easily opened at camp, with everything in plain sight, and closed again for the trip. With this cloth the tump-line may also be used satisfactorily. After the sides are folded over the duffel, the thongs of the tump are pulled together and fastened tightly around the bundle, making a compact and waterproof pack that is easily opened and tied. It is a pack worth considering.

Much in vogue in the Adirondacks and Maine is the pack basket. It is convenient because articles can be piled into it speedily and can be reached quickly. For trappers it is fine, but for the average back-packing trip it is unwieldy and entirely unsatisfactory. Therefore I would choose either the pack cloth or the Duluth pack sack. The latter is my preference.

The regulation type of pack sack, like the Duluth, offers the best solution to the average packing problem at any time. It is waterproof, practical, convenient. The lumberjack of the North has adopted it as the best means of carrying his belongings with the least annoyance and trouble, and he evidently did so after much experimenting.

It is always a wise idea to "break in" gradually on a trip. Never carry a larger load than necessary. You would do far better to make two trips with small loads than one trip with a load which will overburden and exhaust you. Whatever you do, pick the best routes of travel. Always try to follow trails, if at all possible; but when you have to pack through woods where there are no trails, choose the open spots and do not go blindly through the brush where you will stumble and catch your pack on the bushes. Plan your next step before you take it; always keep looking ahead and make each step count.

Get the "lay of the land" before you travel, avoiding rough country and swamps if you possibly can. Where the going is slippery or icy, you will be wise to fit your shoes with screw calks such as those used by rivermen, loggers, and mountaineers. With hand wrench and awl you can very readily equip your shoes with them, and they may save you some bad falls.

When you are traveling in the hills or along ridges, deer trails are the logical paths to follow. Instinct tells deer how to travel; unless in headlong flight, they never make the ascent or descent

in a straight line, but pick the easiest course. A good packer will do the same; it results in more miles and easier going.

Start out gradually. New muscles will have to be developed before you are in trim. It may take you a full week to accustom yourself to the pack you carry, but if you start slowly and increase your load by degrees, your trip will be enjoyable.

Woods life can mean anything from merely loafing around camp to making difficult trips into the back country for big game. The man who ordinarily walks scarcely a mile a day and then starts out on a strenuous two-week canoe trip into the wilderness without first getting into shape physically is going to have trouble. He may have the best equipment which money can buy, but if he himself is not physically able to make the trip he proposes, he is going to meet with some regrettable experiences.

So begin your physical-fitness campaign early—some time before your vacation trip. Get in trim before you start out. Consider the terrain you must cover in tramping mile after mile on your hunting or fishing expedition; remember, it is never smooth and flat like the sidewalks at home.

Begin gradually before your trip to develop wind and muscle. One of the easiest ways to do this is by walking. If your home is too far from the office or shop, walking the complete distance may be out of the question, especially at first. If it is, try to walk at least part of the way. Get up a half-hour or so earlier than usual and start off with about a mile a day for the period of a week; increase the distance as your muscles and wind develop. Walk as much as you can. You will soon find that your step is getting springier and that you do not notice the distance at all. Slowly you will develop into a long-distance walker and be able to increase your speed as well.

Never strain yourself at any time, however. Just keep building up distances from day to day until you can walk five miles with ease, then ten. At the same time you will be accustoming yourself to being on your feet from three to five hours at a time. Campers are usually afoot for a large part of the day, and your legs and wind must be good if you are to enjoy your packing trip.

Supplement your walking with bending and setting-up exercises either at home or in the gym. This will strengthen your back and hips. Swimming is another excellent means of developing wind and strength, and is not tiresome like some exercises.

A week-end jaunt is a very good preparation for a longer excursion. Plan a trip which will take you many miles from your headquarters and will necessitate packing a load for an overnight stop. If your muscles and wind are not up to par, you will find that your stops will be frequent and the pack heavy. It is an ideal test to discover whether you are physically ready for that strenuous big-game hunt which will take you miles from civilization, over rough terrain. You may find that one trip after another like this builds you up wonderfully, so that you can carry a pack of any weight for quite a distance with comparative ease. If you plan far enough ahead of your intended vacation, this result can be achieved.

You may employ a guide who will take care of most of the work on the trip. This should simplify things a lot, but even so, you may want to lend a hand. Do it gradually the first few days; later you will be able to help more, and like it. You will get a great deal more enjoyment out of your vacation if you do.

The secret of walking in the woods is this: *Never try to go beyond your normal rate of speed.* Never stumble along, breaking blindly through the brush. A bad step throws you off balance and tires you. Pick your footing with a sure eye, and thus

keep out of difficulty. Always travel where the going is best; make the most of your opportunities. Maintain a certain plodding step and increase it only when you know it will not tire you out. Never waste nervous energy; always keep some in reserve, and if you travel wisely you can walk in the woods all day, and return from your trip stronger and hardier than you were when you started.

The expert packer never appears to be in a hurry. He is able to make faster progress than a less-experienced man because he has had more practice. The rankest tenderfoot can equal him after he has gained a little experience too.

17. How to Make Camp-Fires

One of the prime necessities for a healthful, dry camp is the well-made camp-fire. It is essential for cooking and for warmth, and is cheerful and comforting after the evening meal. Nothing, however, is so badly managed as the camp-fire. A woodsman is often judged by his ability to make and keep a fire going, especially under adverse circumstances, and it is an art which every camper should master.

The trapper can start and keep a fire burning in almost any kind of weather. Fire-making is an important part of his routine. And so it should be with the camper. Making a fire is simple enough if you know where to look for the material, are able to organize it, and understand how to keep it blazing industriously.

Matches come first. No woodsman ever goes into the woods without a suitable supply. There are ways of making a fire without matches, but it is just as well to forget about those ways in the first place and make sure you have a match supply at all times.

Always carry on your person a waterproof match container, well filled, in a spot where it will not fall out. Button it in to keep it secure. The main supply of matches for the camp should be put in a waterproof container such as a mason jar or screw-top tin, and stored in a dry place in the pack where they are easily reached. It is an even better idea to split the match supply into several tight holders so that if one is lost or spoiled, another will be quickly available.

In some parts of the country camp-fires are not allowed without a permit, and sometimes not even then in certain areas. What the wise camper will do here is to ascertain first if there are any such restrictions against fire-making where he is going, and if there are, to provide himself with an oil or gasoline stove. Whether restrictions prevail or not, it is a good idea to build your fire in a trench if you are afraid it will spread or if the weather is windy. Then there will be no danger from flying sparks and the fire will last a long time. It is by far the best fire for stewing or any slow cooking.

When you are making your camp-fire, whichever kind it is, do not hurry in your preparations. Look around you as soon as you make camp. Select the spot—on gravelly or sandy soil, preferably—on which you wish to build your fire, and then carefully choose your kindling and heavier firewood.

SELECT BEST FUEL

Dry, substantial fuel should be obtained if at all possible, for once you have it you are fairly sure of building a good fire. Dry kindling can be obtained by stripping bark from dry trees, especially birch, or by tearing apart old dry stumps, preferably pine, and using the wood contained therein. Dry branches from either standing or down timber make ideal kindling, and are not so hard to find. The lower branches of dry trees and of fallen trees that stick out and snap off in your hand, make ideal tinder. Most of this will be seasoned just for the purpose you have in mind. Do not pick twigs off the ground, however, for they are usually wet and rotten and will only smoke when thrown on the fire.

Go to any extent to get the right fuel; in most timbered areas you will find it close to camp. In gathering wood it is well to remember that if there is any choice to be made, the hardwoods

should be selected even if they are green, for they leave a bed of ashes and coals. When this bed is heavy enough, it is much like the heat from a stove and is ideal for frying and baking.

Soft woods are short-lived and leave very few ashes. They should not be used unless there is nothing else obtainable. Gather your woods from the high, dry land where the timber is usually hardwood. Fuels found in the lowlands are mostly soft woods. When you are camping along the banks of a river, such woods as alder and willow may have to be used, but avoid them if at all possible.

Hardwoods such as hickory, white ash, hard maple, most of the oaks, black birch, and butternut lead in fuel value. Among the soft woods, dry poplar heads the list, and is not bad, but others such as soft pine, cedar, tamarack, spruce, and hemlock make poor firewood. They do make fine kindling, however.

Split your wood, for split wood burns better than round. Cut it into pieces of uniform size so that it will all burn down to coals at once and give an even blaze.

Decide first what sort of fire you are going to have. If it is to be used for cooking, you do not want a large fire, but will build it out of small sticks and feed them on gradually.

When you have the preliminary material at hand, with enough coarser wood to add later, you are ready. Lay your fire in a spot where it will get a draft—never in a hole or depression where no breezes will strike it. Now lay the shavings and small bits of kindling loosely on the dry ground over your piece of birch bark, fatty pine, or other “touch-off” stuff. Build up from this in tepee fashion, the branches of wood slanting up to a point, in a little conical pile, so that the flames will have something to climb up on.

IMPORTANCE OF DRAFT

A fire must have plenty of air from the bottom, so the shavings must be piled loosely. Since fire climbs upward, the shavings must be piled to a point above the framework to catch the flame and hold it. As the fire jumps up, once you have set match to the tinder, it must have material to feed on. Make sure, therefore, that enough wood is added to the flames to keep them going, but not so much as to cut off the draft.

Your first tinder may be very fine indeed; in fact, for most fires, the finer the better. Use your hunting knife for cutting dry wood into shavings.

Light the fire to the lee of the wind, holding the matches until the shavings catch. If the wind is strong or the weather wet, three or four matches held together and lighted all at once will often start a fire where one may be extinguished. If your preparations have been careful, the fire will gather quick headway. If the wind is strong, shield the blaze to some extent. As the flames climb steadily do not let them lose their energy in the empty air. Have other shavings and fuel on hand and feed them on the open flames.

Once the fire has taken hold and there is little likelihood of its going out, lay on the larger pieces of wood. If you are using a small fireplace like those built in certain park areas, you cannot place the wood criss-cross so easily as you can in a more open spot, but do so if at all possible. When you lay the larger lengths of wood in rows you are deadening the fire by cutting off the draft.

Draft is all-important. If there is a breeze, nothing more is needed; but if not, you may have to fan or blow on the fire. Get down low to do this. The manner in which you pile on your wood must be watched. It is better to throw it on helter-skelter

than to pile it lengthwise, one chunk against the other. Lay your pieces across each other so that they burn up into a point of flame and make a hot fire. As the wood burns, push it together from time to time and add further material. With dry wood as fuel you should have little trouble once your blaze is crackling and throwing off welcome heat.

MAKING A FIRE IN WET WEATHER

To build a fire in wet weather is one of the real tests of the woodsman. Fires can be started under seemingly impossible conditions if the camper knows where to find the necessary materials and how to use them. If you know that your camping will be done in wet weather and under adverse conditions,—and there is always the chance that it will,—you can take good tinder with you, such as sawdust saturated with kerosene, a piece of candle, and other such inflammable material. Lacking this, however, the woodsman can obtain what he needs almost anywhere in timbered areas and get his fire started promptly, if he knows how.

First, select a sheltered spot for your fire. Do your best to keep the rain away. If you have a small tarpaulin, hang this up over the fireplace on two sticks to break the wind and cut off the rain. If you can do this before the rain commences, so much the better; but if not, shelter the spot as much as possible and then go about gathering dry wood. One of the quickest sources of dry material is old, dry, standing or fallen timber. Of course, there is more heat in green wood, once it is properly burning, than in old, partly decayed deadwood, but the first and hardest task in wet weather is to get the fire going. To feed it and keep it blazing is an easier job.

First get your dry tinder, and make sure it is dry before you apply it. Then gather the other fuel to keep the fire going.

Carry it over to the camp-site, and keep it covered at all times.

Pile tinder in a loose cribwork formation near the ground, and above that into a pyramid, tepee fashion, and then light. If the ground is thoroughly wet, build a base of sticks at the bottom of the fire-site, and over this spread your tinder. Such a base will allow for ventilation and keep the wood off the wet ground.

MAKING A FIRE IN DRY WEATHER

Sometimes a fire must be made when everything is dry and inflammable. It will not be hard to get a fire going under these conditions; the idea, rather, is to keep it safe. Make sure first that the ground is not inflammable; do not build your fire anywhere near peaty soil, for instance, which may burn down below the surface. Set it on hard, sandy, or gravelly soil, if possible, away from any trees, whether dead or green. Take precautions to scrape the ground around the fire-bed clear of all inflammable material for some distance.

Always keep a pail of water handy in case the fire does have a tendency to spread, and keep the edges of it wet or lined with stones. Furthermore, keep your fire small—just enough to cook by, and no more.

Before leaving your camp-site, extinguish your fire completely to the very remotest spark or warm ash. Douse it plentifully with water or turn it over and cover with damp earth.

HOW TO MAKE A COOKING RANGE

For the permanent camp, in lieu of a cooking stove, a cooking range can be readily constructed. Two large green logs form the basis of it, with the top and one side flattened.

Cut two green hardwoods 5 feet long and about 10 inches

through. Flatten the top where the pans will lie, and also one side, which is to be the inside as you place the two logs together. Now bed the logs down firmly into the ground in the form of a V, one end open about 10 inches and the other about 5 or 6. This is the main part of your range; the different-spaced openings allow various-sized cooking utensils to be placed on the log-top. Use the wide end for doing the cooking, and the narrow end for frying, baking, and keeping food warm. Green logs are best, of course, as they will not burn through so fast.

To make your stakes and cross-bar, proceed as with any camp-fire. Cut two green stakes about 3 feet long, upper end crotched, and drive them a foot or so into the ground on either side of the bedded logs; over these lay a top stake, also of green wood. To make potholders to suspend from top stake, cut several green crotched sticks of varying lengths. Trim off most of the smaller branches, but leave one or more hooks; do not lop off the branches completely. At one end of these holders is the crotch which hooks into the top stake; at the other insert a nail from which to suspend your pots and pans. By using different length hooks, kettles can be hung at any distance from the fire—low for quick boiling and high for simmering.

The two base logs will be large enough to hold from six to eight pans along their entire length. The fire may extend this distance if necessary. Frying pan and potato kettle may be placed at the broad end, and coffee pot and other smaller utensils at the narrow end, where the fire should be red-hot coals.

REFLECTOR FIRE

When employing a reflector baker, either backlogs of green wood or rocks should be used to throw the heat forward to

better advantage. If rocks are available, build them up in a low wall and build the fire against them. If using green logs, drive two stakes into the ground behind your intended fireplace, slanting the stakes back slightly, and against these stakes lay a tier of green hardwood logs to act as a backstop, or reflector, to a height of 2 feet. Rocks give the better effect here, but logs will do nicely.

To make andirons for this fire, lay two short pieces of green wood at right angles to the backstop and in this space build your fire. Get the fire as hot as possible before placing reflector baker in front. Heat can be regulated at will by moving the baker.

HOW TO MAKE A BACKLOG FIRE

Made somewhat on the order of the fire for a reflector baker is the backlog or evening fire for heating the interior of the camp. Constructed properly and with enough fuel to keep it burning, the backlog fire will burn all through the night. If the fireback is made of slow-burning wood, it will last for several nights.

For a long-lasting fireback, cut logs a foot or more in thickness, and when laying them against the slanting stakes daub the interstices between the logs and around the bottom of the stakes with clay or mud. This keeps the wood in the fireback from burning so easily.

When cutting logs, look for green hardwoods. Reduce your trees to lengths of about 6 feet, and haul to camp.

Now cut and drive solidly into the earth two stakes about 5 feet long. Place them about 4 feet apart, leaning away from the camp door and parallel to it. About 6 feet from the door is a good distance. Against this slanting abutment lay your green backlogs, the heaviest at bottom. About five logs should be

enough if they are thick. Slanted back, they will stay in place. If you wish to do a good job, daub the interstices of the logs and also the bottom of the stakes which hold the logs with clay or mud. The slant of the fireback will throw smoke away from the camp.

Lay two heavy chunks for andirons at right angles to the fireback, about 2 feet apart, and in this opening lay smaller firewood. Start the blaze at the base of this pile. Build the blaze close enough so that the small fire of short wood will burn into the backlogs, and shortly, if all has been done correctly, your heap will be burning brightly and throwing off a warm glow that reflects into the camp proper. Seasoned wood is not so good as green hardwood. Green wood takes longer to get started as fuel, but lasts much longer and is desirable in a fire of this nature. Toward morning you may have to replenish the blaze, but not more than once if it was properly made.

18. Shelters

THE NOMADIC CAMP

The best shelter for the nomadic camper is a sturdy tent, and there are many good kinds. None will be perfect, however; there is no such tent. So your selection will have to be a compromise. Procure one as nearly perfect as possible for the purpose it will have to serve; do not aim for any single advantage but rather for a combination that will meet every possible contingency.

In cold regions a tight camp is needed, but that does not mean it must be fully enclosed. On the contrary, it should be situated in a sheltered place with its back to the prevailing winds; the front must admit a bright fire by night and by day. With a lean-to roof overhead and a good fire in front reflecting the heat onto the bedding, you can keep warm and comfortable in the coldest weather provided the tent is placed in a protected spot. A slant roof is best in these tents, for it throws the heat where it does the most good—on the bedding and the floor.

Such an open-front tent is serviceable in summer also, if a mosquito netting is stretched over the cots or sleeping bags. It is especially adapted to cold weather when heated by a fire directed into the shelter.

For the gypsy camper a tent should be light and compact, for it is frequently moved. Guy ropes and poles, if used at all, should be kept down to a minimum. Material should not be duck or canvas, but a light sailcloth of good quality cotton. As tent is small, it must have special means for ventilation.

Forester Tent

The lean-to Forester tent is a good one; it has an open front, quite wide, sloping down in the rear to a narrow convergence. Two poles crossing in front hold up a ridge pole over which the tent is thrown. The edges are held down by loops and pegs, in a simple and practical fashion.

The Forester is one of the lightest of all tents. It will house one or two campers and can be used for a pack cloth if necessary. Because it is held up by poles, the Forester is good for winter camping; it will not come to grief under continued snows and sleet as a tent might do which was set up with ropes.

Cruiser

The Cruiser or Crawl-in is an easily erected, light tent, which, with ground-cloth sewed in, and bobbinet front, is ideal for a party of two desiring a small, quickly handled tent. It can be suspended from trees, or held up by poles. For the summer camp it is especially suitable, for it is dry and healthful, and although well ventilated, will keep out flies. Regular bobbinetting will not, however, repel "no-see-ums." Extra-fine mesh is necessary for this purpose, and it should be hung in folds all around the inside of the tent, or held up by sticks or framework over the cots.

A Cruiser tent weighs very little and fits nicely into a bag of the same material.

Baker

For the man who prefers the open-front tent, another similar to the Forester but somewhat heavier and yet much more comfortable, is the Baker or Shelter tent. It has a ridge pole and four very substantial upright poles.

The Baker is somewhat like a lean-to, for it slopes in the back, where there is a wall. A fly is attached in front, which acts as a door when closed; when extended the fly gives shelter for camp activities. This tent weighs from 7 to 10 pounds. It is not so light or convenient as the Forester but has the advantage of being easy to enter and move around in.

Miner's

A very convenient and serviceable tent especially adaptable to the nomadic camper is the Miner's or Plainsman's tent, sometimes called the Pyramid because of its shape. It is simple in construction, with a single center pole to hold it up, and very easy to erect. No guy ropes are necessary; the tent is always erect and will stand up very well in any storm.

This tent is adaptable to cold weather, for the front can be opened full from top to bottom to permit a fire to be reflected into the shelter. It is one of the best types to take on a canoe trip; in fact, it is good for any sort of camping. It is light, serviceable in every respect, and very quickly erected—a point to be considered by the camper who makes frequent stops. Erecting and dismantling a clumsy tent becomes a chore, especially on a canoe trip when stops are frequent.

The flaps at the front of the Miner's tent may be staked out on both sides of the shelter to cut off the wind and provide a handy space for the heating and cooking fire. This tent weighs about 7½ pounds in medium-weight waterproof cotton; it sheds rain nicely, and is roomy enough—8 x 8 feet—to house three persons comfortably. For withstanding wind it is one of the best; when pegged down securely, it will stand through the heaviest storm.

This same tent can be had in various adaptations, such as with a straight front and walls, or it can, like the Frazer on the

same order, be equipped with an awning over a narrow door. The Miner's tent in a larger size—say 9 x 9 feet—will accommodate a party of four and their equipment. However, for a group as large as this, the Baker tent is advisable, for it has more floor space, more headroom, and the advantage of a large fly.

Lean-to

Another variation of the open-front tent which is very light and practical for cruising, canoeing, and hunting, is the Lean-to. It is readily put up and taken down. It has a triangular wall, with a back in a lean-to effect that goes to the ground, and at the top a hood or fly that adds to the roof. The tent best fitted for the nomadic camper is the one which is dry, light, easily carried and erected. A tent of the Lean-to type fits these requirements very well.

THE FIXED CAMP

Many camps are erected for two weeks or more. The camper wants a shelter that is elaborate and yet practical—one in which he may spend much time and be comfortable. He usually wants a large enclosed tent heated by a stove.

For this purpose the Wall tent is the best, but another one worth looking at, usually heavier and bulkier than the Wall and much used by the auto camper, is the Marquee tent. Its galvanized framework makes it heavy, but where the camp is made near the car it is a suitable shelter and deservedly popular.

Marquee Tent

This is a compact, one-pole affair, with light spreaders to stretch the top. Usually no guy ropes are needed, but in a wind they may be required. In this case they can be run out diagonally from each of the four top corners. A canopy pro-

jects some distance over the entrance and makes a perfect rain-shed. This canopy is sometimes further supplemented by side curtains to shut out winds and rain.

The Marquee or Umbrella tent does not need any trees for support—a point in its favor—and with a high center-pole makes available much headroom. One can enter and move around at will.

A Marquee serves nicely in cold weather with the addition of a stove. Since it weighs from 50 to 60 pounds, it is decidedly out of the question for canoeing or wilderness travel, but is fine for close-to-the-car excursions.

Wall Tent

Much more roomy than the Marquee and more practical in many other respects is the Wall tent. It makes highly livable headquarters where comfort is the main consideration, and is the choice of deer hunters and many others because it most closely resembles living quarters at home. It is the ideal tent for cold weather. When the front flaps are up, a fire outside can throw heat within; and when the tent is closed, it becomes a very warm shelter by the addition of a heating stove.

The Wall tent has plenty of headroom. This is especially appreciated in a fixed camp where the occupants wish to move in and out at ease. The side walls are a further advantage, for they allow more room for furniture and for air circulation. Walls 3 to 3½ feet high are advisable. This tent can be made rigid and sturdy with a ridge pole laid between trees or held up by cross poles, and is especially desirable in a winter camp where sturdiness of construction counts so much.

The Wall tent is easy to pitch, and considering its capacity is not very heavy. Its net weight, in a size of 12 x 12 feet, in medium-weight waterproof fabric without poles and stakes, is

about 40 pounds. This size tent will accommodate a group of four. If the party is larger, two tents of about 9 x 9 should be used, one for sleeping quarters and the other for the cooking and dining-room. It is never healthful for more than four to sleep in one tent. The 12 x 12 size is as large as should be used for comfort. Any size larger than this must be reinforced to stand the extra strain. Besides, a large tent is harder to pitch than a small one, because of the contour of the ground, and there is the danger of a large tent being blown down by a high wind.

Another advantage of the Wall tent, in winter especially, is that it lends itself admirably to the use of a planked floor. This is most desirable in a fixed camp when snow is on the ground. A planked floor prevents drafts and dampness, and makes the tent generally more livable. The shelter can then be kept clean and fresh at all times, for it can readily be scrubbed or swept.

Baseboards about 12 inches high should be nailed at the edge of the floor, and the tent fastened to the top of these boards by grommets, with nails to hold the tent down. The tent should be pitched absolutely square before laying the board floor, and the floor should then be laid so that it fits the tent perfectly. This is essential, for any space between walls and boards will let in dirt, drafts, and insects, and make the tent hard to keep clean. The baseboards of the tent in turn should be set on a platform of blocks, stones, or logs to permit underfoot circulation. If placed flat on the ground, the tent floor becomes damp and unhealthful.

A cloth or canvas floor which fits close can be utilized, but it is in no wise as good as a wood floor for the fixed camp. It is harder to keep clean, gets wet and damp, and is apt to get torn or cut in walking over it or in moving camp furniture about.

For sleeping bags and beds made on the floor, the planked

floor is practical. Cots and chairs and other camp furniture can be placed on it without marring. Not only is the floor desirable, but by using 12-inch baseboards you are at the same time increasing the headroom by about a foot. Remember always to set the floor from 6 to 8 inches above the ground, and not to wall it in. When the floor is left open underneath, the ground stays dry and the camp clean.

This floor can be used with most open-front tents but is best adapted for Wall tents.

Pitching Tent

In pitching your tent in spring, fall, and winter, place it in country covered with brush and small trees. Avoid trees which might blow down, such as shallow-rooted tall trees, large trees with brittle limbs, and dead trees. The latter are especially dangerous, for they may fall and destroy your tent at any time. Choose a spot sheltered by saplings, small trees, and evergreen brush. The leeward side of a hill makes a good windbreak also. If you can find a large shelving rock against which to build your campfire, it is a good plan to do so, for the rock radiates heat and makes a good backing for the camp fireplace.

Place the back of your tent to the prevailing winds and reinforce your natural windbreaks, if necessary, by a backing of evergreen brush, logs, and the like. To keep the snow, rain, and sleet from reaching the tent roof, it is well to build a framework of poles and to thatch it thickly with boughs. This thatchwork will protect the shelter and keep it from sagging under the weight of any snow or rain. For real reinforcement a fly or waterproof pack cloth can be used. Place your cloth over the framework of poles and then lay boughs over that. Such a roof will keep the tent dry and will make camping in snowy and wet weather very comfortable.

CAMP STOVE FOR COMFORT

For further comfort, especially in enclosed tents, a folding camp stove should be used. Almost any small stove will do, but a folding one is best and is easily carried. It should be fitted with stovepipe and asbestos collar-hole for the tent roof. This collar protects against heat and should have a flap attached which can be turned down over the hole when the stove is not in use.

Some of the stoves for camp use are rather heavy, but for most small camps they need not be large. They will keep the camp warm, and of course meals can be cooked over them also. When the stove is set up, make sure it draws well. Have enough stovepipe on hand to give a good draft; nothing is more of a nuisance in camp than a smoky stove.

There is no need, however, to have the combination heater-and-cooker mentioned above; most campers prefer to cook their meals outdoors, even in midwinter. What you will require then is merely a small stove to keep the tent warm. Do not get a bulky one, for tent room is usually at a premium. Get a small, airtight heater from the hardware store, and you will have one that meets most requirements.

You can make a stove if you so desire. For this purpose an empty oil drum is practical, mounted on short legs with door in front and space into which to fit the stovepipe. It is quite easily put together. A small pipe of 4 to 5 inches is large enough for such a stove. Be sure to equip it with a damper.

Another good heater is the "cone" type stove, from the top of which the stovepipe continues on into the roof.

There are various makes of camp heaters, many of which will keep the tent warm. Of these the sheet-iron is preferred, for it can be used for both cooking and heating. All of these stoves are to be used only in the permanent walled-in camp;

for the open-front tent there is the outside fire for both heating and cooking.

Treating Canvas for Fire

When a stove is used, the canvas should be treated with a fireproofing solution to make it safe from sparks. This is a good idea even with an outside fire, for sparks fly upward from such blazes as well. If you do not care to go to this expense and bother, make a framework of poles about the tent top and cover it with evergreen boughs. This may catch fire, but if it does it can be thrown off quickly enough. Never leave your tent for any length of time unless your fire is completely extinguished; otherwise you may return to find it gone up in smoke, and your outfit with it.

Keep your camp out of the wind, but do not place it in a low spot where frost collects and the temperature drops to the lowest levels. The high hardwoods with a smattering of hemlock and balsam to break the wind are an ideal camp-site in cold weather. Well situated and well fitted, your tent can be made as cozy as a cabin. Put every bit of your outfit to its fullest use and you will then derive great enjoyment from your camping.

WHY NOT A LOG CABIN

One of the snuggest shelters for any kind of camping is the log cabin. It can be fitted with all the conveniences that make for real, solid comfort, such as bunks, chairs, a fireplace, cooking stove, benches, and tables. No shelter in the woods gives such a feeling of relaxation and comfort as does a tight cabin.

Sometimes a man finds a spot which is so generally satisfactory that he wishes to return to it from time to time the year round, and in this case the log or board camp is ideal. Moving

in and out of your log cabin is simple and convenient. In cold weather you will welcome it as a refuge in the wilds, which is certainly something to be considered by the outdoorsman who likes to camp out in all kinds of weather. A log cabin will make a warm shelter in cold weather and a cool one in summer, and will last a lifetime if given proper care.

The cabin need not be large; in fact, for a party of four or less, it can be made about the size of the wall tent recommended for a fixed camp—that is, 12 x 14 feet. If the camper is handy with an ax, and has the time, he can make this cabin himself. It can be as elaborate as he desires, but simplicity is usually the watchword.

Careful consideration must be given to the site of your proposed camp. High, dry ground is best, with good drainage. If near a lake or stream, make sure you have it high enough or far enough back from the water so that it will never be underwater, even in the heaviest floods or storms.

Your camp should also be located near good drinking water, preferably a clear running spring. This is highly important, for plenty of good water must be had for good camping. Carrying every bucketful some distance gets monotonous.

If you can place your log cabin where fuel is handy you are indeed urged to do so. This is especially desirable for a cabin that is to be used in cold weather, for much wood is burned at such a time and is really essential to the comfort of the campers. It takes a great deal of wood to supply a camp, even when economy is practiced. The wood obtained in slashings is usually good, but slashings are not the place to make a permanent camp. Such country is apt to go up in smoke from forest fires, and your camp with it. It is better to locate it in green timber, sound second growth or virgin woods.

The best logs are obtained from spruce, pine, cedar, and

hemlock. They are easy to handle if not too bulky, and are not crooked. Pick out the best of the trees, choosing them for straightness and uniformity of diameter. If the cabin is to be small, do not get logs over 8 inches in diameter.

All this material can be obtained right from the vicinity in most cases, but if not, dressed lumber can be bought from the mill yard. To give the appearance of a log cabin, many camps are made with log-cabin siding of red cedar or the like, with one face grounded to give a log effect. For some campers nothing will do but the standing timber itself, and it is true that a real log cabin has a rustic and woodsy appeal that cannot be had in material obtained from mill yards.

A fireplace is not essential but is highly desirable. Like the cabin, it can be made from materials in the vicinity. Obtain plans for the fireplace as you will for the cabin, and construct it well. Lacking a fireplace, you can set up a sturdy sheet-iron box stove with a good draft, which when fed with good fuel will keep a small cabin very warm and cozy. A cook-stove is a necessity in a log cabin. One of the best is the sheet-iron range with a good length of pipe, fitted into the same chimney flue as your heater.

Camp furniture and finishings can be made from odds and ends of lumber and packing boxes. Discarded home furniture finds a haven in a log cabin and is greatly appreciated. The bunks are best made from logs, with the bottoms of either boards or logs. Chairs, tables, benches, and shelves are readily hand-constructed and give the cabin a rustic effect.

Before erecting your cabin, make sure that the largest tree nearby will not reach the cabin if it should come down. Improve your camp from time to time, and keep it in good repair.

19. How to Camp the Easy Way

There are two ways of camping: the hard way, by sheer strength and persistence, and the easy way, by planning everything beforehand. You can do your camping in either fashion; it is merely a matter of preference. But for the man who goes into the woods to relax and enjoy himself, the easiest way is the right way. Planning your next move will keep you cool, save you from many annoyances, and help make your trip a success.

Do not try to do everything by yourself, if there are other members in the party. Apportion the jobs to each man, for the sooner the camp gets on a systematic basis for every task, the easier things will be for everybody concerned. There should be no shirker in the crew.

Plan ahead. Bad management of your camping chores will get you into all kinds of troubles, but by doing things systematically, you can get through your duties smoothly and deftly. Do not wade blindly into this job and that. Spend a little time deciding on the simplest method of doing things. You will then be able to look back upon your trip with pleasure rather than distaste.

Take short cuts if you can possibly do so. First of all, make sure your outfit is as simplified and compact as you can make it. Some campers go into the woods with more equipment than they can manage, and from the time they start until the time the trip is completed they are encumbered with hundreds of odds and ends which have nothing more than a high nuisance



PLATE 19

Upper A cruiser tent in the big woods makes a pleasant camp. *Lower left* A small fireplace confines the fire and provides excellent cooking facilities. *Lower right* Well-prepared fish are a delicious meal.



PLATE 20

Upper Teamwork pays. Lower All water courses lead to civilization.

value. For instance, they choose a tent which is a maze of ropes and rope ends, curtains, poles, spreaders, stakes, and certain patented devices which all go toward making camping very difficult and complicated. This is not necessary. Select the tent that is easily set up and taken down, and do not go into the woods with portable tent poles and stakes when they can just as well be cut at the spot where they are needed. Even in the permanent camp you should keep your equipment down to a minimum, and not take along more than you need. It is all excess baggage. If you have a guide, there may be more excuse for it, but even then it is wise to keep your load as light as you can.

Use your ingenuity instead. Once you reach camp, give your imagination full play and you will find that with a few simple tools such as ax and saw, you can supply many details for comfort. For a stationary camp you can take time at the beginning to fix things up quite comfortably, and then improve and add to them. Construct the fireplace, dining place, cupboard, easy chairs, tongs, broom, and the like as soon as you possibly can, and as you sit around resting, try to figure out other labor-saving devices.

For the stationary camp, tables and benches constructed by hand of planks or poles are much more solid and comfortable than the folding kind supplied by outfitters. You can make your camp chairs as well. Camp furniture is easily constructed. For tables, shelves, and cupboards, packing boxes are handy as material. A cupboard is best made by adding a board or two for shelves between the sides of the box; if you desire, make a board door, hinged with pieces of leather. Hang this cupboard up in a tree near the table, where it is easily reached.

A very good table is made as follows: Drive four stakes into the ground for legs, nail stakes across the ends or firmly imbed

them in forks of the stakes, and across the end stakes lay boards or poles flattened at the top. Construct the table so that it can be used for mixing and serving foods equally well. A convenient height is about 30 inches. Around the table build a bench on the same plan, about 18 inches from the ground. Boards or planks are preferable here, but poles can be utilized conveniently.

Now over your table put up your tarpaulin if you have one, high enough so that you do not have to stoop to get under it. Set it up pretty much like your tent. It should have grommets worked into each corner. A ridge rope or pole stretched between two trees works well, but cross poles will also hold up the ridge. A vertical stake some 6 feet above the ground at each grommet will further support it. Make a rack for dishes out of poles, and place it near the table, or use the cupboard mentioned above. "A place for everything and everything in its place" applies to camping particularly.

Set your pack in some certain spot, and when putting things into it always place them so that you can readily locate them. Keep packs in the tent, if possible; if not, place them on poles or boards under the tarpaulin, so that they will not get wet either from ground moisture or from rain and snow. Keeping packs always in the same spot will also save you trouble and unnecessary steps; you know where to go for things and can find them even in the dark if you have to.

With a little foresight you can solve the fuel problem for your camp quite readily. In cold weather there will be much fuel consumed, and the smart camper—if he can include it in his outfit without undue weight—will take along a bucksaw or the blade of a bucksaw, which is even lighter. Most trail veterans know that a saw will cut more wood than an ax, and with much greater ease. So a saw blade included in the camp

outfit will be more than appreciated, especially if you use it with a frame constructed right at camp.

This frame is best made from some tough springy wood such as hickory, maple, or oak, about 2 inches in diameter. Cut some heavy branch or small tree, preferably a branch, about 2 feet larger than the saw blade, and make a notch in each end of your frame, into which to fit the blade. Now lay the frame in hot embers until it bends freely. Insert first one end of the saw blade in a notch and fasten it with a nail; then spring the frame so as to fasten the other end of the blade into the other notch end, and fasten it. This is a simple enough way to make a saw which will quickly cut firewood into the right size chunks. About 2 feet is a good length for the wood. In a permanent camp, if you are wise, you will build a wood pile as soon as possible.

In wooded country you can readily construct a sawbuck in a half-hour with materials right at hand. First find a fairly heavy log; cut off a 6-foot length, and roll it into camp. Cut four pieces of roughly matched sapling from 2 to 3 inches in diameter and about 4 feet long, and nail them two and two, in criss-cross fashion over the log, the two sets about 2 feet apart. They will form a wedge into which you can lay your wood to cut it into convenient dimensions. A chopping block will complete your wood-cutting equipment. Always stick your ax into it; never let the ax lie on the ground where it is both dangerous and apt to rust.

One little item for the camp-fire which is easily made and much appreciated is tongs. Things have a way of dropping into the fire, where they quickly burn beyond redemption if you have no means quickly at hand for rescuing them. Tongs can also be used for lifting potatoes, eggs, and the like from boiling water without searing the fingers.

To make a pair of tongs, procure a piece of tough sapling about an inch thick and 2 feet long. Scrape it down thinner in the center, and then thrust it into hot embers until it bends easily. Bring the ends together, and whittle the inside of the ends to a flat, holding surface. A simpler pair is made as follows: Procure a forked stick of hardwood and cut it off 2 inches below the fork. Cut the forked branches about a foot long, and peel. Keep tongs near the fire, readily available.

In like manner you can construct a broom of boughs. Gather a quantity of hemlock boughs, and wire or tie them to a light handle of sapling, trimming the branches off evenly.

Another article of comfort which may be made on the spot is a pillow. All the material you need to bring with you is about a half-yard of muslin, duck, or other fairly heavy cloth. Sew it up in the form of a bag, leaving one end open. Fill this at camp with soft boughs or moss, and when you have finished using it, empty out the filling and stuff the cloth in your pocket. It takes practically no room at all.

Always get a good night's rest while camping. Arrange your bedding so that you will get the most comfort from it. With a little ingenuity you can make a sleeping bag of your three blankets to get the utmost warmth from them. First lay the largest blanket, folded, over your bed of boughs. Lie down on it, and cover yourself with the second blanket, folded likewise—that is, doubled the long way. Over this blanket lay the third, not folded, but covering you fully and pinned at all four corners to the folded top blanket and tucked in at the edges. This is utilizing your blankets to the best advantage by arranging them so as to get the greatest insulation value.

In winter you may want to make a sled to haul your supplies over the snow. Of course, a toboggan is best for this purpose;

but if you have an extra pair of skis, you can readily convert them into a sled by placing them about 2 feet apart and fastening them together with several cross-pieces of board. A rope about 20 feet in length is then fastened to the notch at the ski points, making a fairly strong sled which will take your load over the snow with ease and little cost to you.

If you do not happen to have a reflector baker with you, you may easily make one from a galvanized water-pail or a 5-gallon square oil can. By placing the water-pail on rocks or wire legs and making a shelf within the pail on which to place the bread, you can bake very nicely by moving the pail closer to or away from the fire, as desired.

A 5-gallon oil can may be converted into a camp oven by cutting out one side of it and thrusting that side into the can to form a shelf, about 4 inches from the bottom. Now build your fire in front of the baker, and as it burns, scrape the embers into the opening at the bottom of the can. By this means your oven utilizes both direct and reflected heat and turns out first-class camp breads.

Another handy little outdoor stove is made from an empty 2-pound coffee or tobacco tin. At the top of the tin cut strips about 2 inches deep, 2 inches apart, and then flatten outward to make a shelf. Two inches from the bottom punch out holes all around the can with a large nail to provide a draft. Your stove is now ready for fuel, which should be denatured alcohol poured into the bottom of the can to a depth of about $\frac{1}{4}$ inch. Light this material; no wick is required.

This stove will also burn small cans of alcohol, as well as gasoline and kerosene. When using gasoline or kerosene, fill the can partly with sand, pour in one-half cup of the liquid, and light. Such a stove is handy for preparing meals near or

within the tent on wet days. For indoor use, cut the draft holes at the bottom of the can doubly large—about the size of a dime.

A Dutch oven is handy for preparing foods which require cooking a long time, but is sometimes too heavy to pack into camp. You can make a very nice one of your own, however, with no other materials than those right in the vicinity. Dig a hole in the ground about 2 feet larger than your largest kettle, and line it with small stones, wedged tightly together. When you are preparing to use it, build a very hot fire within it of hardwood; let it burn for several hours, and then rake out the coals. Now set in your covered pot of food, and put a piece of duck or canvas over it; then pack sods and earth tightly over the whole thing.

Meats can be cooked in a bake-hole like this without burning or requiring any further attention once the pot is placed in the oven. Beans can be baked in this way in eighteen hours without any trouble. Cereals and dried fruits can also be cooked nicely in this oven, coming out piping hot and ready to serve. One of the precautions to be observed is to start your foods with more water than is necessary with an open fire, for no water can be added while cooking.

If the weather is warm and you have no other means of refrigeration, you can construct a camp ice-box with very little work. You will require two packing boxes, one slightly larger than the other. Place the smaller one inside the larger. There should be a space of 6 to 8 inches between them on all four sides. Nail the two together at the bottom, with the smaller one centered. Now fill the space between with such insulating materials as sawdust, dried leaves, or moss. Sawdust is the best if you can obtain it.

Fasten a cover for each box with hinges of leather. Then in-

side the top cover place burlap or empty bags, either loosely between the covers of both boxes or nailed to the inside cover of the top box. The latter way is best. For drainage, bore two or three small holes through the box bottoms. Now place your ice chest in gravel so that the leakage will go into the ground; or better still, dig a deep hole in the ground in a shady spot and put the chest in it, with earth tightly around the outer box.

Another convenience is a camp chair. For this a piece of canvas is needed, about 60 by 24 inches in size, with a hem of 3 inches at both ends. Cut stakes for the framework in the shape of folding chairs, and slip in your canvas. Use nails or cord at the joints of the chair. A resting place more easily made is the "deacon seat"—a log flattened off and placed near the fire. Any handy log from 4 to 6 feet long can be used. Chip it flat with a small ax and place it in a depression.

HOW TO MAKE A BOUGH BED

Sleeping on the ground is anything but comfortable even in warm weather, and on cold nights it is especially so.

The best way to make a bough bed is from a framework of logs in the outline of a bed, filled in generously with evergreen boughs. Cut two logs 7 feet long and two logs 5 feet long for a good-sized bed. Lay the two 7-foot logs parallel to each other, and at the ends nail or fasten the 5-foot logs. If nails are not to be had, hold the logs together by pegs driven into the earth outside of the logs.

Now fill in with spruce, balsam, or hemlock boughs. Instead of using small evergreens, cut most branches from the larger trees leaving the trunk intact. Carry them in a heap to the camp-site and reduce them there to smaller size. Balsam is best, but hemlock makes good filling. Lay the biggest boughs on the bottom, and then fill in the top with the smallest ones, starting

at the head of the bed and laying the boughs with underside up.

The more the better, if you have the time. The result is a high, soft, springy mattress.

The matted needles of a bed like this keep the body above the ground, making a dead-air space between the ground and the sleeper. This is insulation par excellence when used with blankets; it retains the body heat and keeps it from radiating downward. As a further aid, the blankets themselves can be covered with a layer of fine boughs, which helps to decrease the circulation of air above. The best kind of blankets for keeping warm in cold weather are heavy woolen ones with a long nap. If you have a bed roll or sleeping bag, so much the better; but it still is not a good idea to lay them on the bare ground when the weather is cold. The insulation of a bough bed helps immensely.

20. Camping in Wet Weather

There is no use in letting a spell of rainy weather spoil your camping. If you are prepared for it, you can endure wet weather almost indefinitely—certainly for a week or so—and come through with memories of a trip enjoyed. No matter what sort of camping you do, there will be obstacles to overcome, and rainy weather is one of them. It need not keep you out of the woods or send you home before your vacation is over.

The time to prepare for it is before you leave, of course. Check your equipment and make sure you have waterproof covers for everything. If your outfit is small, it may all go into the pack sack. Make sure, therefore, that your packs are of waterproof material, with a top that pulls together snugly, preferably with a draw-string. Patch weak spots with canvas and heavy thread.

If you are choosing a new pack, get one that is comfortably large so that it will hold your outfit without crowding. A small sack is suitable for a small outfit, but when you are selecting a pack for any bulk you will do far better to get one plenty large enough to carry your outfit. A small pack tightly jammed will ride all over the back and become a nuisance. Weight and bulk make a difference, but the way in which your outfit is packed matters even more. A good-sized pack, not too full, is just right.

Next consider your tent and bedding. If your outfit is small, these may go into your regular pack. Your bedding above all must be kept dry; not only will it be uncomfortable to sleep in if it is damp, but it will take on weight and make packing diffi-

cult. Even if your outfit is to be light, you will be wise to carry a tarpaulin as extra equipment, especially when the woods are wet. Procure as light a one as possible; with it you can cover your entire outfit and keep everything within safe and dry.

An aluminum case for your rods is ideal; waterproof canvas covering will do the job well enough, but make sure it is waterproof. Your reel should have a leather case, preferably chamois, with a waterproof container on top of that. When in use, the reel, as well as the rod, will naturally get plenty of wetting, but when put away it should be dried out and placed in a container that will keep it dry and free from rust. A steel tackle box in which to store the rest of your fishing gear, such as tools, lures, hooks, and lines, is highly desirable, and is a good place to keep your reel as well. An oil can should be kept in the tackle box and used frequently. Wipe the dampness from your gear with an oily rag, and apply a drop of oil here and there where needed.

Consider your gun. No matter what its initial cost, it is well worth taking care of, especially during a wet spell. While it is being carried on the trail, it should be kept in a good sheepskin, elkhide, or other waterproof cover as protection against the rain; an inside lining of lamb's wool will absorb any dampness that may creep in, and prevent rust and tarnish. This wool provides an oily substance which preserves the finish, and keeps the gun in good condition. Elk leather makes a good strong waterproof cover; it too should be lined with lamb's wool for the best protection. A good gun case can be made at home out of canvas, or one may be purchased for a reasonable price. It is an investment which the hunter who runs into wet weather will never regret.

Your supply of matches should be carefully checked and guarded. Buy several boxes if your outing is to take you far from the beaten path, and do not place all the matches in one

case. Divide the supply and put each part in a waterproof container. A screw-top match container, either wood or metal, which holds a good supply is handy and safe and should always be kept filled. It is a good idea to waterproof a quantity of matches by dipping the heads in melted paraffin; from this block you can pick off matches as needed. Always have one or two match-holders on your person, and keep them in a pocket where they will not fall out. Some holders have a loop which can be fastened to the belt, where they are readily available and never get lost.

Your bedding and shelter are all-important when the weather is wet; you must depend upon it more than when the weather is dry. Check your tent before you leave. Make sure it is wind-proof and waterproof by setting it up and giving it a good dousing with water. Some tents are treated so that they last for years without admitting water, but you never can be entirely sure until you prove it to your own satisfaction. And that proving should be done before your outing, while you can still do something about it. If you can use the same treating process given it by the manufacturer, so much the better; but if that treatment is not available, get the best waterproofing you can find and apply it to all parts of the tent. Your tent should be of good quality and of at least 8-ounce weight. Touched up from time to time with a good commercial proofing mixture, it will keep out the worst of rainstorms.

As a precaution when packing up after your outing, make sure your tent is absolutely dry. On reaching home it is best to take it out of its case and let it lie loose for a time. When taking it down in the rain there is very little time to allow it to dry, and this will not hurt it to any extent for a short time; but when putting it away for the season, open and dry it thoroughly so that it will not mildew and rot. An ounce of prevention here is

worth a pound of cure. By the way, too, when applying the proofing, be sure to include the ropes; they need it for longevity as well as the tent.

Keep your blankets and your bed roll in a pack by themselves, along with the tent, if this can be done, and keep that pack dry like the others. Your pack should be of good waterproof duck, about 13-ounce at least, to be of good service. If there are any holes or places that look weak, patch them with the same kind of material when possible. Even a small hole in the pack can let in plenty of moisture. When setting down your pack for any length of time, try to pick a dry place such as a stump or log. Or if possible, cover it with the tarpaulin that should be standard equipment for any camper who wants to keep his outfit high and dry in wet weather. There are a thousand and one uses for a small piece of tarpaulin, and one of them is for covering the equipment when you are at the camp-site. For transporting equipment via canoe or horse, it is invaluable and gives everything double protection.

Consider your clothing and make sure that your boots, breeches, coat, and hat will shed rain. Your footgear gets heavy wear when the woods are wet and should be given an application of boot grease, well worked in, before you start. Clean the boots first, dry them, and then apply the grease liberally, rubbing it in with a rag. In an emergency, a heavy oil may be used. A can of commercial shoe oil or grease will give the best results. Rub it well into the uppers, as well as the crack between the soles and uppers—a spot which is usually vulnerable in wet weather. A good shoe oil will soften, waterproof, and preserve the leather, and make your boots last for years. Carry the can with you on your trek.

If your breeches are of heavy all-wool mackinaw material, 32-ounce or better, they may keep you dry during a rainy spell.

This material is heavy for summer wear, and as a rule, is only water repellent. For wet weather I would advise procuring a pair of waterproof leather breeches, preferably horsehide. They stand a lot of hard wear and are waterproof, burrproof, and windproof.

Horsehide leather which has been waterproofed in the process of tanning makes breeches that are pliable and soft, and that will keep the wearer dry no matter how much it pours. You may be able to make such a pair yourself, if you have the necessary materials and ability. A good inexpensive substitute is an overall of duck or canvas which you can have made to go over your regular breeches, to fit you loosely. They should be fitted with suspenders over the shoulders and a belt around the waist. The horsehide is the better of the two and will last indefinitely, but a strong canvas or duck overall will serve you if it is well made of sturdy material.

Some campers do not like to be hampered by a raincoat, but prefer the regulation duck-hunting coat of waterproof construction. Such a coat is all the camper may need, especially if it is roomy and long enough to go down over the hips. But I recommend a raincoat as standard equipment. You can get a good one, light and pliable, which will occupy only a small space in your pack, and which will keep you dry over the shoulders with a minimum of weight.

Top your outfit with a wide-brimmed hat which will shed rain.

When a man is well dressed and well equipped, he has won half the battle against the weather. Especially while on the move he will be comfortable. At the camp-site he should do his best to get warm and dry and rested. The answer to that, of course, is a fire, and that may or may not be a tough problem, depending upon the dampness and the man's resourcefulness. A cheerful

fire will do any camper good even on a dry day, but when you are wet and cold, hungry and tired, the prospect is doubly inviting.

Look for a high spot, first of all, where there is a little breeze. Avoid building a fire under big trees that continually drip and keep things wet. Clear out the brush and leaves. If you are carrying a tarpaulin, set it up near the spot where you make your fire, and place your paraphernalia beneath it. Under this, too, is the place to store your dry wood when you collect it. (This tarpaulin, by the way, can be used as a part of your pack; tied at both ends, it makes a sturdy duffel bag, easy to carry.)

Now get your firewood, and do your best to select some that is dry. Old blackened pine stumps or the inside of a pine or cedar log, will produce good tinder and material for your fire. Dead branches can be snapped off the lower parts of trees—hemlock, pine, cedar, or almost any hardwood. Birch bark pulled from a dry tree is also ideal tinder, but if you are wise you will carry a handful of dry newspaper in your inside pocket. Some campers carry a small tin of cotton waste soaked in gasoline, or a tin of paper soaked in kerosene. Get everything you can in the way of wood or birch bark that is dry. You will probably need it, for making a fire in wet woods is no easy job.

Split every piece of wood you intend placing on the fire, and lay it under the tarpaulin, ready for use. Get to work in earnest. You may be wet and miserable when you start the job, for every branch has a spray of cold water that douses you liberally, but by using the ax on the right kind of material, preferably the resinous logs and stumps, you will get warmed up. Get a large fire going first, to dry you out, and then make a smaller fire for cooking.

If the ground is very wet, make a small platform of sticks in

criss-cross fashion, so that you can build up from this and get a draft for your fire. Build your fire carefully, starting it on the thinnest of material placed over your tinder. Shield the blaze and nurse it along, and when it begins to assume good proportions, add to it so that you can get the whole camping ground dried out.

When your big fire is roaring, you can build the cooking fire and set up the tent. The fire will drive away the gloom of the day, and when you get your meal prepared and the tent up, the whole character of your camp-site will change. It will look homey and livable, rain or no rain. Give your big fire plenty of fuel and let it burn long and powerfully. There is very little danger of its spreading to the neighboring woods in this kind of weather. Watch, however, that it does not get out of hand and into dry stuff which *may* be around.

Needless to say, if you are so hungry that you cannot wait for the erecting of the tent, you will eat first. Nevertheless, it is well to get the tent up as soon as possible. You can better enjoy your meal when you know that your camp is pitched.

Find as dry a location as possible for your tent. You may have to go into the woods for stakes and poles. Put it up with the same diligence that you used in getting your firewood, and you will have it done soon. Dig a trench around the wall of your tent,—this is highly desirable,—and your camp-site by this time will look quite livable.

Now there is nothing which will hearten you like a good, well-cooked meal. Here again your tarpaulin will be handy; when the cooking is over, sit and eat under it in comfort, out of the wet, with the fire throwing welcome heat in your direction.

All this time, while working and sitting around the fire, you will have dried out somewhat. If your clothes are still damp after supper, slip into an extra change of dry clothes, or lacking

them, dry your clothing over an improvised rack of poles near the fire. Take off your soaked garments, piece by piece, and dry them thoroughly. If the fire is too hot, you will have to guard against scorching, especially in the case of your footgear. Watch your boots above all things, for they scorch easily and can be ruined. Keep them just near enough to dry out slowly. If the heat becomes too intense, it may burn and shrivel them so that they will get dry and hard as boards. After they have dried somewhat, rub them well with neat's-foot oil or grease. This application, along with the gradual drying, will make them soft and pliable and waterproof again.

By this time you are pretty well ready for the night; you have had a chance to dry out and relax. The fire is going, your clothing dry, supper over, and shelter up. Make sure about this time that you have enough dry wood for the rest of the evening and for the morning, under cover if possible. Then and only then, light your pipe and sit back and relax. Eternal vigilance makes a comfortable camper. Plan ahead, and everything comes easy.

21. The Art of Canoe Cruising

TYPES OF CANOES

The original canoe, as it is commonly understood, was the Indian birch bark, and for the purpose for which it was intended, it was everything that could be desired. It was practical, it was made of materials ready to hand, and it could be used for almost any kind of water travel. When the time came for the white man to fashion canoes, he was quick to imitate the red man's model. With slight variation the Indian craft and the one we now know generally as a canoe, are pretty much one and the same.

The white man, however, has improved on the Indian model, notably in the covering. The birch-bark canoe will run circles around the canvas craft in most cases, but it is inclined to soak up water and take on weight. A canvas-covered canoe does not soak up water to any noticeable extent, and is superior in that respect to the birch design. A canvas craft is stronger, more dependable, and safer in rough water than the birch boat. But there the comparison must stop, for the canoe of Indian design was cunningly and skilfully made, and highly noteworthy.

The modern canoe is everything that the woods traveler today can wish for. It is strong and sturdy and will stand up very capably in rough water. It is ruggedly built by expert craftsmen, and the 20-foot craft, for example, will carry a load of some 1500 pounds, including the crew.

The 20-footer is used largely by traders and trappers whose routes take them over much open water. For the average woods-

man this size, with a beam of 36 to 38 inches, is bulky, but used for open-water transportation, it is ideal. It is certainly safe where the water is rough. At northern resorts, this craft, with outboard motor attached, is being found practical and sturdy. A woodsman must study his needs thoroughly before selecting a canoe. If it is to be used mainly for large waters where the wind is strong at times, the 20-footer, especially with an outboard attachment, is the one to consider.

A spacious tumble-home carried far into the ends of the canoe makes for added safety. Your craft then does not have that "tippy" balance that a narrower canoe is likely to have. One of the safest of this type is the guide's model with ends (dècks) flattened so as not to catch the wind. Fashioned with a flat bottom and with the flatness carried well into the ends, the guide's model in an 18-foot length makes a practical canoe for rough water travel.

It must be remembered, however, that these larger canoes weigh from 80 to 100 pounds. They are certainly not a one-man canoe, nor good for much portaging, for they are heavy and awkward to carry. The 18-foot weighs about 85 pounds and will carry all the supplies that a two-man outfit may need for two to three weeks; but if there is much transporting of craft and outfit to do, it may be too bulky.

Therefore it is well to look over the smaller models before selecting the right one. Most canoes run from 18 feet down to 14, with the 16-footer as the most popular size. The 14 to 16-footer is fairly light, as a rule, and can be handled readily.

HOW TO HANDLE

The Indian assumed the kneeling position in paddling; one of the reasons is that the center of balance is low when you are kneeling. It is one of the safest ways to paddle a canoe, and this

the Indian doubtlessly discovered. Neither does the kneeling posture give so much resistance to the wind.

This position is worth adopting, for it is ideal in canoe travel once the knack of it is acquired. The position does not cause too much discomfort. It is the natural way of sitting in a canoe, just as certain positions on horseback are ideal for horseback riding. The occupant is one with the canoe when assuming this posture. To imitate the Indian's position the paddler should crouch low in the canoe bottom, with his toes in, sitting on the inner sides of his feet. The weight is low; the paddler clings to the canoe, wedging his knees against the side. In this position a paddler can determine the behavior of his canoe and can keep it under much better control than when sitting on a seat.

That this position is tiring for the novice goes without saying. Once learned, however, all is well, and the canoeist will marvel at the ease and control he has in propelling his craft in this way. To become adjusted to this method, try kneeling until tired, then return to the seat, and then change to the kneeling position again. By using a canoe cushion or a pad of some kind for a few days, you will considerably ease the strain of such paddling.

Calm water can be navigated by the rankest beginner in a canoe, but with a sea to cope with, canoeing becomes more of a problem. Never tackle rough open water until you have a fair mastery of your craft, for each wave presents a problem of its own, and besides that you have the wind to contend with. Squally water is most difficult, for it hits your craft with considerable force, and when you are navigating a heavy sea, does its best to throw you off your course.

Never load your canoe heavily when navigating rough water; or if you do, be doubly careful. A light canoe will stand almost anything in the way of a sea, but a loaded craft is harder to

handle, since it rides heavier and waves are likely to wash over the gunwales. Care in handling will bring a heavily loaded craft to safety through white-caps and combers, but there is always a limit to the ballast it can stand. Before setting out, make sure your canoe is not overburdened.

Also make certain that you have distributed the load to best advantage. For a one-man outfit the load should be placed in front and behind the occupant. For a two-man crew the supplies and equipment should be placed low on the bottom and in the middle of the craft. Heaviest articles such as grub packs are loaded first, on the bottom, and lighter things like duffel bags are placed on top of them.

Make sure your canoe rides evenly before pushing it off; the bow should be 2 inches higher than the stern for best progress. Lay everything in the canoe as low and as flat as possible. It makes a safer riding craft and lessens resistance to the wind. If your load is too heavy, it is better to make two trips with it rather than risk overloading.

If you are bucking a head-on sea, it is advisable always to keep your bow straight into it. You must trim the craft on an even keel while navigating water in this fashion, and keep a steady balance. If you have only the sea to contend with, this sort of navigating is not so difficult, for a canoe will handle well in any sort of rough water; but with a squall hitting you every so often you must be doubly on the alert and dig your paddle in to avert the strength of the wind. Keep paddling; do not stop. When you see the wind spraying the waves about you, put a little more power into your stroke and meet it squarely.

There is a little trick in navigating rough water that is well to master. Hold your paddle tightly against the gunwale and atop the water at the same time; it will then act as an outrigger and aid you in keeping the canoe on an even keel.

If the sea is dead ahead, it is wise to "make haste slowly"; otherwise you are apt to let the water wash in over the gunwales or dip over the bow. It goes without saying that you should trim your craft on an even keel and sit as low and well balanced as possible, for with the shifting of balance one way or the other you are losing best control of your craft and giving the waves a chance to break over the sides of the boat.

With any subsidence of the sea you are in a position to put in an extra stroke or two with your paddle. You are battling wind and wave, and must use your wits to best them. A good canoe well handled will stand up under unusually rough water, and it need not have air-chambers to be able to do so. The paddlers may don life-belts, especially if they are wearing heavy clothes or cannot swim. But no matter what happens to your canoe, never abandon it. Stay with it as long as you can. It may overturn by some accident or other, but it probably will not sink. It is embarrassing to overturn in your canoe, for among other things you may lose your outfit. So just do not let it happen to you. In other words, be careful at all times and *never take any chances*.

Paddle on the leeward side when the sea is over one bow. It is the only fair way for yourself and partner. You can handle your craft readily in this fashion and will not have to miss any strokes, since you can paddle and steer at the same time.

With the sea dead astern, you will find that unless the waves are exceedingly high you can make time nicely and use your paddle only as a rudder. From time to time you may have to put in a stroke to swing back on your course, but if the wind is stiff and the sea rolling in strongly you may just sit balanced and enjoy yourself. But remember this when traveling with the wind: You may wish to return to the place you left in short order, and the farther you go with the wind, the harder will be

the paddling on the return trip unless you outwait the sea and strike back when all is placid.

PORTAGING

A canoe, being the fragile craft it is, should be handled carefully at all times, especially over a portage. With two men carrying, it should be turned bottom side up, then lifted over the heads of both men. Do this both at once; or let the man in front lift his end and let it down, and then let the man in the stern do likewise. The man at the bow lets his end down so that the front thwart rests on the back of his neck and shoulders, and the man at stern lets his end down until the back thwart finds the same place. Now both men have a good view of the ground in front of them; all the weight is on their back and shoulders, and they can pick their way with care and comparative ease.

Try carrying a canoe in any other way, such as by walking on either side of it and carrying it by the thwarts, and you will find it a very tiring job. With the canoe slung aloft, a portage of reasonable length need not be dreaded.

An especially made yoke can be used for carrying the canoe, or the canoe paddles can be lashed to the gunwales and the canoe carried in that way. Pads too can be used with other carrying contrivances to soften the weight of the craft over the portage.

Never carry a canoe with a load in it. That is hard both on the canoe and on the packers.

Portaging is not the only time a canoe should be handled with care. It should, in fact, be so handled on all occasions. It is a remarkably sturdy craft for its weight, but often it is abused both through sheer carelessness and through ignorance of what it will stand. It is easily bruised both within and without. Never wear hobnailed boots or other hard soles when canoeing; or if

you do, get a light grating to take the brunt of your stepping in and out. Treat it gently and it will last you much longer and will look better.

A common mistake which is hard on the canoe is the manner of landing. Never run a canoe front or stern up on shore unless you get out in the water and lift it there. Instead, it should be landed broadside under almost all circumstances. If there is a dock to be used, this is very simple; but when one must land at almost any spot on a cruise, it is well to work the canoe in side-wise, first running in the bow and then working the canoe as a whole broadside to the landing place. This is especially important in a heavy sea; it will save your canoe many hard knocks.

Rocks, stones, deadheads, and the like will mar your canoe to a considerable degree if you land bow or stern first, because of the construction of the craft. If the landing is especially difficult and cannot be made in any other way, you had better step out into the water and land it broadside, even though you do get wet.

Let your weight down carefully when stepping in. If the canoe does not have a grating, this is especially important. A light spruce grating does not cost much, however, and should be used.

THE PADDLE

Experts concede that the thin maple blade makes the best paddle, since it is both strong and supple. It has a spring and power that spruce does not possess, but it must be thin or it becomes clumsy even though strong.

Most paddles are made of spruce and are strong and supple enough for the average canoe cruise. The spruce paddles fray somewhat and must be trimmed from time to time. They may

be strengthened by a strip of copper tacked lightly to the tip of the blade.

For paddling from a seat, the paddle should be about as long as the user is tall. For paddling from the bottom of the canoe, however, the paddle may be about 3 or 4 inches shorter than that. This size applies to the stern paddler. For the bow paddler, the paddle should be about a foot shorter than the paddler for best results.

VARIOUS HINTS

Camp on high dry land if possible, never near large timber. Head for the open points in summer and the thickets in fall, as does the red man. Avoid islands as camp spots. They have a romantic appeal and are oftentimes interesting to visit, but for a night camp are poor sites. Your canoe might drift off and leave you high and dry, without means of departing. When cruising large waters during heavy winds, the canoe party may not be able to cross the open stretch and may have to either wait for the storm to pass or chance a rough crossing at best.

Canoe cruising is interesting work; sometimes it is hard and grueling, but in the long run it is just what you make it. Do not pass it by in cold or rough weather. If you are careful and use *your knowledge of woodcraft to good advantage, you will find a canoe a very useful adjunct to your vacation. Plan your trip well, carry plenty of good grub, dress warmly, and play safe at all times.*

Know your canoe, your maps, your food, your limit of endurance. Remember that your cruise is all in the name of sport, and try to get the most out of it. The weather and water may be rough, but by skilful travel you will enjoy your trip.

22. Fellowship of the Trail

There is no friendship so sincere as that which is engendered when outdoorsmen meet and face the hardships of the trail together. "Poverty makes strange bedfellows," as the saying goes. So also does the trail at times. For example, you may meet a fellow woodsman who has lost his way. You do not stop to inquire who he is and what he is doing here. You know he needs help to get back to camp, and you give him all the assistance you can.

So it goes. Accidental meetings occur that are usually temporary, although friendships may develop. However, when it comes to choosing a steady camping and outing partner, the woodsman should choose him well. Make sure he is the man you can rely upon to meet you halfway at all times. And once you have made your choice of a lasting partner of the trail, it is well for each to respect the wishes of the other as much as possible. In such a mutual agreement the two of you will get along.

There are times when disagreements will arise, and if settled amicably so much the better. They may put your friendship to the test. Should we take this trail? Is it that one which will get us back to the camp, or is it the other? Should we *camp at this spot* or keep on going to another? Shall we fish until sundown, or is it wise to leave before it gets too dark? These and other questions arise on the trail. When they do, discuss them pro and con, better still, be guided by the judgment of the man who knows his way about—the veteran of the party.

When you have planned a trip, do not change your mind

about it. Head for the spot you have chosen unless conditions are such that it is unfeasible. A first-class woodsman will not let bad weather change his plans unless it is so rough that it is going to spoil the cruise altogether. The next day or the day after, wind and rain are not so bad as they first appeared. They will blow away some time and all will be bright and sunny again. If you stay at home against the wishes of your partner, you are likely to regret it.

And when you do set off on the cruise, make yourself agreeable so that you will perhaps have on this trip the same partner you had with you the last time. Friendships are made on the trail that often last for a lifetime, and likewise they are lost when one or the other makes himself thoroughly disagreeable. There is such a thing as the ethics of the trail as well as ethics of other human contacts.

If you like to get into the woods by yourself, all well and good. Many a woodsman is a lone camper and cruiser by choice. That perhaps is the way he gets most out of his communing with nature. But do not be selfish in this respect. If you understand the woods and waters well and someone who should get to know the outdoors better wishes to accompany you, by all means give him the benefit of your experience and take him with you. If your companion really has the makings of a woodsman, he will soon prove it and will appreciate more than a little the privilege of learning the ins and outs with someone who has "been there before."

Who should decide the course of action when problems arise on the trail? Undoubtedly the man who has proved himself the best woodsman, the man who is known for his cool head and wise counsel at all times. It is a pleasure to have such a man for your companion. He will, if need arises, get you out of the woods in the best possible way.

He will probably not get you off the trail in the first place. But even the best of woodsman can lose his way, especially in unfamiliar country. That is not altogether uncommon. But the old woodsman does not lose his head when "the camp is lost," as the Indian once put it. On the contrary, he will take his bearings and get out some time or other without letting it get the best of him. And if he should have to stay out a night because he is lost, he will make himself right at home: build a glowing fire, throw up a shelter, light his pipe, and make the best of it. He is carrying a knife and matches; he knows he is perfectly safe as long as he uses his head and takes things easy.

One thing he realizes to help him to some outpost or other: *All watercourses lead to civilization.* By following a stream directly or indirectly, he will get out of the woods unscathed.

Camping leads to good fellowship. It brings out the best in man, and the worst. Conditions are hardly ever perfect, but the man who makes the best of things is the one who will always come back for more. He will be sought out by his companions as a likely partner on other excursions. Rain or storm does not deter this man. He can see the humor in a rainstorm, wind, snow, or hail. He takes them all in his stride.

He gets under shelter, if things get too bad, and talks it over with his friends. They build a fire, make a pot of coffee, light their pipes, and wait the storm out. They get together and really enjoy the handicaps of the trail, for they know that everything will be all right when the clouds clear away. The woods will dry, the sun will come out, and everything will look much better later.

He knows that the woods get lonesome at times, especially on a dark night far into the interior where all is quiet. But he knows things will change when a fire is started and camp is pitched. When the time comes, he does these jobs with care and dili-

gence and makes the best of the situation. What's more, he will share his outfit with the rest of the party. For your true woodsman is generous and meets another on a common footing. He is willing to share his equipment with the other fellow, all in the name of good fellowship.

The real outdoorsman cannot get enough of the woods and waters. He has coped with the workaday world for a long time, but comes the day when he takes his outfit and hits the trail—for instance, on the first day of angling season. It may be raining when he starts out, and shortly the night gets colder and the rain turns to snow. That makes no difference to him. He has the proper equipment, and in the dead of night, as he reaches the stream-side after a two-hour hike through wet woods with sky dark and wind strong, he makes a fire, pitches his tent, and gets ready for the night.

Snow may sift down and the moon stay behind dark clouds. The woodsman and his companions heap on more wood and make a backlog fire that lights the countryside with a cheery glow. The snow keeps on coming down; the ground is white with it. But that is not going to spoil this excursion. There is magic in the night; things are going to be all right on the morrow. The sky does not show any signs of relenting for some time—but it will. And sure enough, the moon finally breaks out for a fleeting moment; sooner or later the storm will be over.

Yes, everything is as it should be, even now. The woodsman is back at his old stamping grounds with old comrades of the trail. He looks about him inquiringly, taking stock of his surroundings. Here is plenty of fuel for the asking. He sees a big stump, and with his heavy ax cuts away the roots. With a few lusty whacks with the butt end of the ax he knocks it over. Here is firewood indeed, and he piles this chunk on the fire. Now is when the fire really begins to burn. The party was be-

ginning to get cold; but after the woodsman's foray others get busy, and soon you have enough wood to last all night. The blaze lights the scene for a full fifty yards.

The campers linger. This is one of those first-of-the-season sorties with every man on his own as far as personal comfort is concerned. Just how some of them are to keep warm is a matter of conjecture. They did not want the tent which their leader brought, but as the fire dies down somewhat they are glad enough for it and begin to look for their blankets.

Your woodsman has already placed them inside the tent. Soon the men retire, each to his own blanket and bed of boughs, and before long all is quiet. The blanket of the woodsman is on the outside, and when all is peaceful and the fire down somewhat he heaps on fresh logs, and turns in for the night, rolling in quietly lest he wake the rest of the crew.

Fellowship indeed, and friendship. They are found on the trail among outdoorsmen of the highest order. There is romance lurking in the offing, and on the morrow the party will be up bright and early to seek it out. Some distance below, if the woodsman does not fall asleep for a time, he hears the rippling of the stream. The night is clear and cold now. Near at hand comes the mournful cry of the hoot owl. And shortly the camper turns in the corners of his blanket bed and falls asleep to the murmur of the wind in the brush.

The woods are a retreat; there is no place here for care and worry. Soon comes morning, bright and clear, and the carefree camper is again up and about.

It seems now that the whole camp is awake, and the first thing they do is to poke at the fire. The woodsman has elected himself cook. He scrapes enough wood together to get the fire going again, and asks someone to carry in a fresh pail of ice-cold water from the nearby spring. Someone is off in the hard-

woods building up the fuel supply. Birds cry in the distance; a duck whirls by on bullet wings. Somewhere a deer splashes in the stream.

The woodsman gets the breakfast going in a hurry; as camp cook he believes in feeding the party well. Sounds of rattling dishes bring the campers closer. "Come and get it!" the cook cries at last, and they come with a rush. Everybody is hungry.

Things are going well with your early spring camp. There may have been differences of opinion the night before, but all that is forgotten now and the day is off to a good start. The camping party is working together, and the trip has the makings of a successful one. It is just the beginning; there will be a lot more. Your dyed-in-the-wool outdoorsman never gets enough.

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